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ON THE RELATIONS OF DISEASES OF THE SKIN TO INTERNAL DISORDERS.

ON

The Relations of Diseases of the Skin to Internal Disorders

With observations on
Diet, Hygiene and General Therapeutics

BY

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To

The Many Physicians

who have honored me
by their faithful attendance at and interest
in my Clinical Lectures on
Diseases of the Skin
during the last thirty years,
this volume is respectfully dedicated.

"We want a critical investigation of skin diseases in their relation with diseases of other organs. Are diseases of the kidney or of the liver frequently productive of them? and if so, what are the peculiarities of each? Which are in special relation with the nervous system? Are diseases of the intestinal or pulmonary mucous membranes frequently associated with those of the skin? * * * We earnestly beg of our specialists in this department that they will abandon all useless controversy as to nomenclature, orthography, and classification, and betake themselves to the earnest study of the causes of the maladies which come under their care."—*British Medical Journal*, Jan. 22, 1870.

PREFACE.

The following lectures were delivered to physicians at the New York Skin and Cancer Hospital in March, 1905, and are published in response to numerous requests: the reasons for their preparation and delivery are partly explained in the first lecture.

The separation of Dermatology as a specialty, and the necessary attention to the study of local features for differential diagnosis, together with the great attention which has sometimes been directed toward microscopical details, has too often led the thoughts of those studying this branch away from the grave facts of general medicine, and from the relations existing between the skin and its disorders and those of the rest of the economy. While in a general way many will acknowledge the importance of the matters here presented, it has occurred constantly to me in consultation, and in reviewing the previous management of cases coming to me, to find that these matters have been disregarded, often to the great detriment of the patient. In these lectures, therefore, I have tried, as simply and practically as possible, to show the great necessity of studying the patient as

well as the disease, and of seeking to correct errors which the observation of many has shown to be of importance in regard to many cutaneous disorders, as also to the patient's well-being.

Each of the topics considered is almost a study by itself, and could easily occupy the allotted time of a lecture. No attempt, therefore, has been made to be exhaustive in any direction, for in view of the character of the audience addressed, the desire was rather to stimulate thought than to give a thorough résumé of all known on each subject.

As the lectures are so personal, given to physicians who had long followed the clinics, I have endeavored to present matters as I see them from study and observation, and have, therefore, avoided unnecessary discussion of abstruse or doubtful subjects. Nor have I attempted to give the literature of any subject: the briefest mention of it would occupy an equal space with these lectures. But as I had studied many of these subjects previously, and had often given a pretty full literature, it has been thought best to refer to these articles, for the aid of those who wish to pursue any subject further; this, and my inability from press of work to collect more recent references, is my apology for what might seem unwarranted egotism. I may add that I have often drawn freely on what I have previously written, in some directions, as I

found that I could not express the matter more clearly.

In sending out this little book, I am thoroughly conscious how inadequately it presents the great subjects considered, but I believe that if its contents are rightly grasped and acted upon they will aid many in the treatment and cure of certain cutaneous disorders which have previously been intractable.

531 Madison Ave., New York.

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ON

THE RELATIONS OF DISEASES OF THE SKIN TO INTERNAL DISORDERS.

LECTURE I.

General considerations: purpose of lectures.—Errors in dermatological teaching.—Relations of the skin to the general system.—Predisposing and exciting causes: internal, local.—Urticaria from gastro-intestinal derangement.—Recent recognition of faulty metabolism, auto-intoxication, and neurotic disturbance causing skin lesions.—Micro-organisms require a suitable soil.—Drug eruptions.—Errors of diet causing skin lesions.—Errors of metabolism inducing cutaneous affections.—Eruptions associated with Gout, Rheumatism, Diabetes, Obesity, and Scrofulosis.—Broadness of true Dermatology.

GENTLEMEN:

Repeatedly during the course of my clinical demonstrations of Diseases of the Skin, both this year and during former years, I have found myself dwelling too exclusively on the external or local aspects and therapeutics of the cases presented; and, as you know, I have often uttered the *caveat* that there was an error in so doing, and that, certainly in private practice, far more attention should be

paid to the internal relations and causes of many of the affections of the skin than was possible to do in the short time at one's disposal during a clinical lecture.

I recognize that as general practitioners you come here largely to learn differential diagnosis, and to gain that personal acquaintance with diseases of the skin which can be acquired only by seeing the many cases which have passed before you, and which I have endeavored to differentiate by other cases, models, and pictures of similar affections.

I recognize, likewise, that it is particularly desirable to understand well the local treatment, which is often somewhat puzzling, and this I have sought to demonstrate in as clear a manner as possible, in the preceding clinics.

But I also realize constantly that in our clinical conferences, for lack of time, we have not been able to take that broad view of Dermatology which is requisite to a proper understanding of the subject: we have necessarily considered the skin too much as a separate organ, unconnected with the rest of the economy, and have regarded its diseases too much as local affairs amenable wholly to local treatment. This is a criticism which I have frequently made in regard to the clinical teaching of Dermatology abroad, and while I have often found myself making

the same error, I have striven from time to time to direct more serious attention to the underlying elements which must always be regarded in order to achieve the best results in practice.

In the short time of a clinic, and with the desire to show as many cases as possible, it is hardly feasible to enter carefully into the clinical history of patients as regard constitutional conditions, which are of the highest importance in regard to many of them, nor is it possible to consider fully the details regarding dietetic, hygienic, or even internal medicinal treatment, which are frequently essential to the real cure of many diseases of the skin.

It has been thought wise, therefore, at the close of the course to devote a few lectures to a consideration of some of the principles underlying the correct practice of Dermatology, and to consider "The Relations of the Skin to Internal Disorders" with a view of discovering some of the underlying causes, which predispose the skin at one time or another to disease, or which may themselves produce the eruption; and then to present some of the means of remedying them.

It is a very great mistake to consider the skin as an independent structure, simply as the covering of the body. While it serves the latter purpose in a remarkably satisfactory manner, it is also an exceedingly important organ, having much to do with the

life and the health of the individual, and having most intimate relations with many other organs and parts of the body, as I believe will be abundantly shown in these lectures.

To invite serious attention in this direction I need here only mention a few points, such as: The physiological development of the skin at puberty, with the growth of hairs in both sexes: the miles of sweat pores, giving off daily, even in insensible perspiration, fully half as much water as the kidneys, while under certain conditions a much larger quantity: the fact that the skin is the principal agent in the regulation of the temperature of the body: the disastrous result which has followed varnishing and gilding the whole surface: the excessive perspiration in the crisis of certain diseases, in malaria and in tuberculosis: the dryness of the skin in cholera, advanced Bright's disease, and other chronic affections: the cachexia manifested in the skin in cancer and other depressed conditions: the ulcerations which occur in the intestines in connection with bad burns of the skin: all these and many more illustrations will arise to the mind to show that the skin is not only an organ of great importance, but that it has special, general, and systemic relations which cannot be ignored. Even in animals it is customary to judge of the health by the condition of the hairy coat.

It has long been recognized in regard to very many diseases, of many different organs, that there is a *predisposing* and an *exciting* cause: in regard to no organ is this so commonly true and so often demonstrable as in the skin.

All observers agree, however, that the skin can, in certain instances, be affected by either local or internal causes alone: the former is illustrated by the effects of heat and cold, irritants, injuries, etc., the latter is perhaps best illustrated by *urticaria* from gastro-intestinal derangement. But in regard to the large majority of conditions found upon the skin there is considerable difference of opinion in regard as to the relative share which local and internal causes have in their production. For some years, largely under the influence of the Vienna School of Dermatology, attention was mainly directed to local etiology quite to the neglect of constitutional or internal elements. This tendency was increased by the active and rapid advances made in bacteriology, so that a few years ago there was hardly any lesion of the skin which was not attributed to the action of a micro-organism.

But, as always happens, the pendulum begins to swing in the opposite direction, and much is now heard of faulty metabolism, auto-intoxication, neurotic disturbances, etc., as causes of skin lesions, which, after all, only represents another way of

recognizing the influence of internal disorders in diseases of the skin.

The truth is, however, as I have always held and taught, that in the majority of skin affections the broad principles of general medicine are to be applied, and, as in diseases of other organs, we should look for and rectify both the predisposing and the exciting causes; to regard one or the other alone is to fall far short of our duty, and certainly not to attain the best success.

We will not, at the present time, discuss the many local exciting causes of lesions on the skin, which are more or less familiar to all, but wish to show some of the internal relations which either predispose to, or directly cause some of them. As illustrations of the occurrence of eruptions on the skin, quite independent of local causation, we have only to remember those coming in early *syphilis,* in *leprosy,* the *exanthemata,* etc.

We may, however, begin with a brief consideration of some of the eruptions which are commonly recognized as local affairs, such as the parasitic affections, including those in which micro-cocci or bacilli have been found, and too frequently claimed as the sole cause.

But even here we find abundant reason to recognize constitutional elements of importance which cer-

tainly have a bearing on the case. Thus, it has been repeatedly shown that even *ringworm* will not attack every one exposed to it in a school or asylum, and *favus* is relatively seldom traced from one person to another, while, it is very rare to find *tinea versicolor* in man and wife. Moreover, ringworm which has long resisted treatment will generally be found to yield readily or even to disappear spontaneously on the approach of puberty. There seems to be some constitutional peculiarity which predisposes even to the attack of these coarser vegetable parasites. Moreover it has been repeatedly observed that even *animal parasitic diseases* are influenced by constitutional conditions. The amount and character of the eruption in *scabies* varies greatly in different individuals, not necessarily depending upon relative cleanliness, and it has been noted that even *pediculi* and *fleas* will not attack certain individuals, while the eruption caused by them also varies greatly, in different subjects.

When we come to consider carefully the relation of micro-cocci and bacilli to disease we find the evidence of constitutional relations even still more striking. If this were not so, with our present knowledge of the almost omnipresence of these micro-organisms, few would escape.

It is believed that many of us take the bacilli of

tuberculosis into the system frequently, and yet in relatively few do they work serious harm. We know from surgical experience that pus cocci exist almost everywhere in civilized communities, and they are believed to be the active agents in *impetigo, sycosis, boils, carbuncles,* and suppuration generally; and yet comparatively few are thus affected, and relatively few cases of *eczema* become *impetiginous.* Close examination will always reveal constitutional disorder or lowered vitality when this occurs. *Dermatitis seborrhoica* will often remain quiescent for years,[1] confined to a moderate greasy scaling of the scalp, until from some systemic derangement it lights up an eruption elsewhere, possibly of considerable severity. In all these instances, and many others could be cited, the microbes seem relatively powerless to do harm until some change in the constitution of the soil occurs which stimulates them into activity. This we now know relates to altered condition of the blood or lymph, or to impaired vitality, due often to faulty metabolism, or many causes which will be developed later.

Illustrations could be multiplied indefinitely to show the resisting power of health over the germs of disease, and yet the principle seems to be applied

[1] Bulkley. Dermatitis Seborrhoica, etc. N. Y. Medical Record, May 13, 1905.

very little in diseases of the skin. These seem to be regarded on all sides as something peculiar and distinct from all other maladies, and subject to different pathological laws. Much could be said on the evils of narrowness of thought and practice in this branch of medicine, and many illustrations could be given of the harm resulting from not studying cases thoroughly and then treating the patient in the directions indicated thereby, instead of by local applications alone.

As well might the neurologist seek to give temporary relief to headache or sleeplessness by sedatives or hypnotics, without searching out and removing the cause: as well might the oculist seek to improve the eyesight by glasses alone, when syphilis had altered the deeper structures: as well might the laryngologist only relieve a tuberculous laryngitis by topical applications, without seeking to overcome the cause by hygiene and proper remedies: as well might the orthopedist only support a lateral curvature by braces, and expect satisfactory results, without employing means to strengthen the weakened muscles on which the curvature depended: as well might the gynæcologist expect to get good results by local treatment in a leucorrhœa which was dependent upon debility and constipation, without relieving the underlying causes.

The proper treatment of certain diseases of the skin often involves the most extended knowledge and application of the principles of general medicine, and he but poorly serves his patient who prescribes only a local treatment, without going fully into the case and rectifying, as far as may be, the systemic errors which often play a most important part in the production and continuance of an eruption.

How large a proportion of the ordinary run of cases may require general constitutional treatment, can be judged from the fact that out of 10,000 miscellaneous skin cases, in private practice, which I recently analyzed, over 6,000 or more than 60 per cent. of all, belonged to five of the more common inflammatory diseases of the skin, requiring more or less of general treatment: whereas there were only about 10 per cent. belonging to the three classes of new-growths, hypertrophies and atrophies, and only about ten per cent. of syphilis and parasitic diseases together, both of which also commonly require general treatment.

Having already seen that even those diseases which apparently depend upon parasites and microbes manifest peculiarities pointing toward altered constitutional conditions, it remains to consider the relations of certain other eruptions to general conditions or internal disorders. It must here be premised that

this line of investigation in dermatology has not yet reached the desired point of absolute demonstration, in many instances, and that we have to rely mainly upon clinical observation, made by those whose practical experience renders them competent to judge. Many of these points probably, can never be demonstrated experimentally or by laboratory methods, with the precision which we are accustomed to look for in regard to some of the medical and surgical matters in the realm of bacteriology.

But the experience of past observers, together with the rapidly accumulating, and perhaps more scientific, records of recent times, certainly show many definite and positive relations between disorders and derangements of internal organs and certain conditions of the skin, with causative features in many instances. It would weary you to no purpose to here go over all the proofs of this statement, indeed it would take hours to quote from literature the evidences of constitutional relations of many diseases of the skin, some of which will be presented later in these lectures, in connection with special topics; but a few general considerations may be of interest and value, and aid in the proper understanding of the relations under consideration.

First, there may be mentioned the various eruptions on the skin following the internal administra-

tion of a large number of quite different drugs, of various characters, vegetable, mineral, and animal. Thus, from vegetable drugs the eruptions caused by Copaiba and Quinine have long been known, and many others have been reported, as, from Aconite, Belladonna, Ergot, Opium, Turpentine, etc.; among the minerals sometimes causing skin lesions, when taken internally, may be mentioned Iodine and Bromine and their compounds, also Arsenic and many of the coal tar products, as Antipyrin, Phenacetin, Sulphonal, etc.; of animal products acting in the same manner, we may cite Antitoxin and Tuberculin. There is no question but that time and again, in the same individual eruptions of various characters have been produced by the internal administration of these and other drugs. In other words substances from within can produce alterations in the skin. With these may be mentioned the skin lesions accompanying the infection by animal poisons of *syphilis, leprosy,* the *exanthemata,* etc.

Next, clinical experience constantly shows *urticaria* arising from the ingestion of various articles of food, such as mushrooms, shell fish, strawberries, etc., and also from acute indigestion from many causes: furthermore, it is unquestionably sometimes caused by malaria, the outbreaks having a perfect periodicity and being checked by quinine.

Again, daily observation of patients with *acne* demonstrates that the eruption varies continually with the diet and condition of the system. Time and again the lesions will appear after some special indiscretion in diet, as in candy, nuts, pastry, or liquor, and constipation will continually induce a fresh outbreak. Anyone who sees much of *eczema,* and especially one who watches an eczematous patient for a length of time, will have abundant opportunity of observing, not only an aggravation of the disease, but also fresh outbreaks of eruption, after periods of quiescence, from errors in diet, constipation, and digestive disturbance; the same may occur in consequence of various depressing conditions, such as overwork, nervous strain, deficient or broken sleep, etc.

Close attention to patients with very many other cutaneous affections will constantly reveal the influence of internal or constitutional disorders modifying, aggravating, or even apparently causing their outbreaks; later on we shall see that a great mass of recorded evidence has demonstrated conclusively that menstruation, or rather the menstrual cycle, has a definite and profound influence on many eruptions, and is the efficient exciting cause of some.

As we have previously seen that the skin is often an accurate reflex of the state of the general system, it can be readily understood that, even with the most

varied pathological alterations to which we give the names of different diseases, there may be and often is a constitutional element, as a predisposing cause, which must be reckoned with if we are to get permanent results from even the best local treatment.

Now, as to exactly what is the internal condition or disorder underlying or causing each and every eruption of the skin, we are not yet in a position to state with a positiveness which might seem desirable. But we do know, from accurate clinical observations and record, very many of the conditions which so constantly precede or accompany many cutaneous affections that their connection seems to be etiological; indeed, the repeated concurrence and recurrence of them together leaves no doubt of this causative influence. Furthermore, the therapeutic observation, so often repeated, of the yielding of many affections of the skin, under widely different local treatment, or with none at all, when some of the systemic errors, to be discussed later, have been rectified, warrants the belief that the errors which have been thus corrected have exercised an influence on the causation and continuance of the skin lesions.

Recent studies are showing more and more the acumen and soundness of older observers who recognized and believed that certain diseases of the skin were dependent upon what was then called disordered

blood states, or "bad blood," but which are now spoken of as "auto-intoxications," "errors of metabolism," etc. It is instructive to recall that the modern study of hæmatology has conclusively demonstrated that even the elements of the blood itself are subject at times to great changes, which are more and more recognized as resulting from or indicative of disorders and diseases of various organs. This is the more important because, not many years ago only ridicule was given to those who subscribed to the older and more popular views regarding the connection of diseases of the skin, or other organs, with any forms of dyscrasia, diathesis, or altered blood states. This subject will be considered more fully later on.

Modern investigation is also demonstrating clearly that the nervous and vascular systems have much to do with diseases of the skin, and testimony is likewise accumulating continually that the state of the urine often affords a reliable indication of the condition of the system, and that its thorough and repeated analysis can aid much in determining how efficiently metabolism is performed. It is recognized, however, that the state of the urine only indicates the manner in which the different organs and tissues of the body fulfill their varied functions, and how the food and oxygen taken in are utilized.

In all this, many will see only the recognition of the various elements which have long entered into medical thought, and a return, on a more scientific basis, to the views long held by many as to the importance of general medical matters in connection with the etiology and treatment of many diseases of the skin.

We are, therefore, fully warranted in devoting some time to the consideration of the conditions of the system constantly found to be underlying, or at least existing with, many cutaneous maladies; for, if I read literature aright, the belief is constantly growing that in them we must look for the causes, the removal of which shall accomplish the cure of many diseases of the skin in the quickest, best, and most permanent manner—of course, with the addition of proper local measures.

Mention has been made of errors of metabolism in connection with diseases of the skin, and this is a subject which has recently been studied with great interest.[2] Much has been observed and recorded by many writers, to show the definite connection between the two, and no doubt can exist that metabolic

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[2] Bulkley. Diseases of the Skin connected with errors of metabolism. Medical Record, New York, November 26, 1904. Also, Transactions, Fifth International Dermatological Congress, Berlin, 1905, p. 118.

errors can both influence the skin and excite diseases therein.

Metabolism represents the series of chemico-physiological changes occurring within the system, by means of which, first, by *anabolism,* nutritive material and oxygen are converted into an integral part of living tissues; and, second, *catabolism,* whereby their potential energy is expended in living force and heat, and the products of the physiological disintegration of tissue are rejected in altered form, and appear in the excreta.

There can be no question that normal and abnormal metabolic processes play an important part in health and disease, both of the skin and other portions of the economy, although we are yet far from an accurate knowledge of just how the definite changes in the tissues of the body are produced thereby. But the great mass of clinical observations which has been recorded, demonstrates that certain skin affections are associated with metabolic errors in such an unmistakable manner, that there remains little doubt as to their etiological importance.

It would weary you to present all the evidence which has been collected, but a summary of the principal points may be of service.

Recent writers on metabolism, Von Noorden, Von Leyden, and others, recognize four principal dis-

eased conditions dependent upon errors of metabolism, namely, Gout, Chronic deforming Rheumatism, Diabetes, and, Obesity; to these I would add a fifth, namely Scrofulosis, the scrofulous or strumous state, as exhibiting a faulty metabolic condition favoring the growth of micro-organisms. Some have added oxaluria and phosphaturia, which, however, can hardly be regarded as more than symptoms, often associated with one or the other of the states mentioned. These metabolic diseases will now be briefly considered in succession, as far as relates to the cutaneous phenomena more or less definitely observed to be connected with them.

I. Gout. It is understood that the term gout is no longer applied solely to an inflammation of the joints, notably that of the great toe, but refers rather to the gouty state[3] of the system which may manifest itself in a great variety of manners. It may be described as a disease of faulty metabolism, largely relating to nitrogenous metamorphosis, with hereditary tendencies of unknown origin, but acknowledging a dietetic, digestive, or nervous causation, and exhibiting various functional and structural disorders of many organs and tissues.

There is no doubt but that the circulation in the

[3] Bulkley. On the recognition and management of the gouty state in diseases of the skin. American Practitioner, Nov., 1877.

blood of the results of faulty metabolism induces inflammatory changes in the structures of the joints, also alterations in the blood vessels, disturbances in the nerves, and indeed modifications in very many of the tissues and structures of the body. There can be no doubt, therefore, that the skin can suffer with the other organs, and this may occur in two ways, (1) In common with the rest of the body, excited by the presence of the results of erroneous metabolism, its tissues can take on inflammatory or hyperplastic action, idiopathically or from external causes: or (2) That as an excretory organ its elements may suffer in endeavoring to remove imperfectly formed waste products.

While we understand gout, or the gouty state pretty well clinically, and recognize the various major and minor phenomena associated with it, it is by no means yet known exactly in what the metabolic changes consist; and the profession, as I believe, is not yet satisfied with the various statements in regard to the part which uric acid, as a definite factor, plays in the production of the symptoms. There is undoubtedly a reduced alkalinity in the blood, and the imperfect purin products are an efficient agent in causing the lesions found; this subject will be treated more fully later, in connection with blood and urinary changes found in some diseases of the skin.

It is certain, however, that the gouty state greatly influences many cutaneous affections; time and again it has been reported by reliable observers that they will alternate with gouty attacks, or be caused or greatly aggravated by pronounced gouty conditions, or modified by less severe gouty manifestations. And conversely, it is a matter of common observation that under an anti-gouty treatment there will often be the most pronounced benefit to certain skin affections, while under prolonged treatment of this nature, dietary, hygienic, and medicinal, the tendency to certain eruptions is entirely overcome. These points I have myself verified time and again.

1. *Eczema.* Foremost among the diseases of the skin which very many trained observers have recorded as often of gouty origin is that protean eruption to which the name of eczema has long been given. While all cases of eczema are by no means of gouty nature, it appears that the eruption is at least favored by the conditions of faulty metabolism belonging to gout.

Garrod, in a study of nearly 2,000 cases of gout seen in private practice, found that in his last group of 212 cases no less than 47 per cent. had eczema, and he estimates that probably over 30 per cent. of patients whose gout has been of long duration have eczema.

My own experience, viewed from a different standpoint, fully confirms the statements of Garrod. Among 4,000 recorded histories of patients with *eczema,* in private practice, I should place fully 30 per cent. of them in the gouty category; not that acute or active gout was observed in any proportion of them, but fully 30 per cent. of the cases either had gout or exhibited phenomena recognized as belonging to the gouty state, or gave a strongly-marked family history of gout. Abundant testimony corroborating the frequent dependence of eczema upon the gouty state could be presented from many writers, both on gout and eczema, but it is hardly necessary, the matter is so generally recognized.

2. *Acne.* Many cases of acne, especially acne rosacea, are found to be of a decidedly gouty nature, and no great or permanent relief can be obtained until a thoroughly anti-gouty regimen and treatment is instituted and maintained.

3. *Psoriasis.* While many cases of psoriasis are found associated with rheumatism or chronic arthritis, and also in strumous subjects, a very considerable number occur in those who are manifestly gouty, and in such a proper anti-gouty management will often yield surprisingly good results.

3. *Dermato-Neuroses.* The many nervous phenomena associated with and dependent upon the gouty

state made it easy to understand why it is that many diseases of the skin of neurotic origin occur in this class of patients.

Prominent among these is *urticaria,* and its allied condition *angioneurotic œdema,* which are very common in the gouty, as has long been known.

4. *Pruritus,* both general, and that localized in the anal and genital regions, is a well-recognized gouty symptom. Gout is also said to figure largely in *dermatitis exfoliativa,* perhaps in one-fifth of the cases; but of this I cannot speak personally.

II. Rheumatism. Both the acute or sub-acute, and the chronic deforming forms of rheumatism are associated with certain diseases of the skin, and the recognition and treatment of the constitutional state are necessary to secure the best results. An illustration of the former is *peliosis rheumatica,* and certain cases of *psoriasis* often exhibit very clearly a connection with the chronic deforming rheumatism.

III. Diabetes. A considerable numebr of cutaneous lesions have been attributed to glycosuria, and there is no question but that it has much influence on the skin; in illustration may be mentioned the dry and scaly condition generally seen in diabetic patients, while in some cases excessive sweating occurs, with the excretion of sugar and lactic acid. Often there is intense general *pruritus,* and *eczema* of

the genitals, also with great excoriation of surrounding parts, from saccharine urine, is well known. *Urticaria, bronzed skin* and *parasitism* are likewise frequent. *Xanthoma diabeticorum* is also a well-established entity, of which Stellwagon gives a bibliography of 38 cases.

There are also quite a number of other conditions of the skin often very clearly dependent upon this condition, which have been grouped under the three conditions of Cachectic, Neurotic, and Suppurative and Necrotic. *Purpura* is not an unusual eruption to occur from the cachexia, as also certain forms of *impetigo and bullous eruptions:* Among the neurotic eruptions have been mentioned *zoster, angio-neurotic erythema and œdema, cyanosis of the fingers and toes, shedding of the nails, anæsthesia,* and *perforating ulcer.* The suppurative and necrotic lesions are represented by *furuncle, carbuncle,* and *diabetic gangrene.*

IV. Obesity. With this evidence of faulty metabolism *intertrigo* and *eczema* are not infrequent, as also marked *hyperidrosis; dermatitis seborrhœica* flourishes especially well in these subjects.

V. Scrofulosis. The fifth and last condition of faulty metabolism is that illy defined and illy definable state, which all recognize clinically as scrofulosis, or the strumous condition, which need not

be dwelt upon here. Thus far there have been few if any researches, to my knowledge, in regard to the metabolic changes belonging to this state, but that faulty anabolism and catabolism play an important part in the poor nourishment of this class of individuals there can be no doubt.

As far as relates to the skin, these patients exhibit a laxity of tissue which favors the growth of micro-organisms. In them the tubercle bacillus finds easy lodgment and growth, in the skin as well as in the lungs and other tissues, and *lupus* and the various forms of *scrofuloderma* flourish. Hence in them we see also the tendency to *suppurative processes, boils* and *cutaneous abscesses,* and *eczema* in them tends to take on an impetiginous form.

It is recognized, of course, that all these processes of deranged metabolism not only depend, more or less upon dietary, hygienic, climatic, and many other influences, but are directly occasioned by disturbances in the action of the various organs and portions of the body. For this reason we can best understand our subject by considering separately the different apparatus and systems of the body concerned in the vital processes, as they are related to diseases of the skin. We will, therefore, examine directly into the relations existing between certain cutaneous affections and

1. Digestive disorders.
2. Excretory disorders.
3. Respiratory disorders.
4. Nervous disorders.
5. Circulatory disorders.
6. Sexual disorders,

also the relation between certain skin diseases and

7. Anæmia, malaria and syphilis;

and, finally, we will consider the general subjects of

8. Diet, hygiene, and general therapeutics, as related to diseases of the skin.

You will notice, gentlemen, that this covers a pretty wide area relating to general medicine, and reminds one of a definition once given of a good dermatologist, as one who understands the skin thoroughly and all that is inside of it. But let me assure you that in all that I have said and shall say there is nothing that has not been borne out abundantly by the clinical experience of many, and nothing which I have not myself verified time and again. To practice dermatology in its best and most successful manner one must be an all-round physician, recognizing and grasping everything which can contribute to the good and bad health of the patient, and, therefore, to the vitality of the skin, whose disease is under treatment.

LECTURE II.

Case illustrating matters under discussion. Eczema, acne, and bromidrosis with systemic derangements.—Digestive disorders related to diseases of the skin. Urticaria, acne, eczema, pruritus, etc.—Gastro-intestinal and hepatic disturbances.—Excretory disorders related to diseases of the skin. Intestinal disturbance: constipation, intestinal fermentation and diarrhœa. Urinary disturbances: imperfect and deficient urinary excretion. Estimate of total solids passed daily. Specific gravity and actual acidity of the urine. Urea excretion related to dermatitis herpetiformis. Indican and urticaria, eczema and acne. Uric acid: urates: phosphates: chlorides; sulphates. Urine in eczema, acne, psoriasis, pruritus, erythema, etc.—Cutaneous disturbances related to diseases of the skin. Hyperidrosis, bromidrosis, micro-organisms, etc.—Respiratory disturbances related to diseases of the skin. Chronic catarrh, asthma, bronchitis.

In the previous lecture we considered some of the general questions involved in recognizing the importance of the relations of internal disorders to diseases of the skin. We recalled that cutaneous manifestations continually occurred from internal causes, as in the infectious diseases, syphilis, and leprosy, also that many substances taken internally as food or medicine frequently caused lesions on the skin. We saw that even in what are known as parasitic diseases, and those exhibiting micro-cocci and bacilli,

there was really a constitutional element required for their full development and continuance, which internal element is represented by faulty metabolism and a weakened and less resisting skin tissue.

We also found that in the well recognized metabolic diseases, Gout, Rheumatism, Diabetes, Obesity, and Scrofulosis there were certain affections of the skin which occurred in such a manner that the best observers could not but believe in an etiological connection. It was then recognized that these disturbances in metabolism were largely owing to certain derangements of internal organs, these again being often due to errors in food, hygiene, etc. We shall now take up the systemic disorders which the experience of many has shown to have important relations to diseases of the skin.

In considering these topics it will be infeasible, except in certain instances, to attempt to point out all the special diseases of the skin affected by each internal disorder, because on very many occasions a number of deranged conditions combine to produce the result in question. We shall, therefore, consider in succession each of the systems composing the body, and trace the errors which experience has found to be of significance in connection with diseases of the skin. It is recognized, of course, that many of these internal disorders are closely related to one another,

the one often causing the other; and while necessarily considered separately, they are all only links in one great chain concerned in the proper functioning of the entire economy, including the skin.

As an illustration of the co-relation of various internal disorders and cutaneous manifestations, I want to present some striking portions of a letter which I received, a while ago, from a most intelligent and observant patient, a young lady of 24, who was under my care off and on for a number of years, with both *eczema* and *acne*. It reads almost as if it were prepared expressly to impress the subject now under consideration; I quote the language of the sufferer, she writing from a distant state. She says:—

"The eczema on my hands still continues, but I am at present even more troubled by a chronic red nose, which has been afflicting me for months past, and has lately gotten much worse. My nose is not constantly red, but is subject to sudden and severe hot flushes, during which the blood seems to rush to my nose, inflaming and heating it to such an extent that it fairly throbs and burns. These attacks come on after meals, on going out of doors and returning to warmer rooms, on approaching the fire or on bending my head, as at prayers in church. But they are not confined to such moments, being liable to occur at any time, and during any occupation. The

other afternoon, as I was sitting quietly reading, at about five o'clock, *suddenly* I felt the burning and tingling and I knew before looking in the glass that my nose had become fiery, startling red: and yesterday in church, during the sermon, it suddenly heated up in the same way. The inflammation generally lasts a long time, an hour or more, though sometimes not so long. Last night, as I was lying awake in bed, it grew hot and throbbing without apparent cause. These attacks have become so frequent that it now seems to me that my nose has become permanently slightly red.

"My general health is not very good. I am troubled with constant cold hands and feet; and at the same moment when my nose may be burning, my feet will be icy. I have tried friction, plunging them in cold water, changing my stockings, and many remedies to stir up my circulation: but the reaction never lasts more than a few moments, and then they are again as cold as before. My eyes are also nearly always swollen and heavy, and I have a constant dull headache, which very seldom leaves me.

"I am greatly troubled with sleeplessness, lying awake for hours every night. Although I retire at half-past nine or ten, I often cannot get to sleep before one or two o'clock, and when I do sleep, the slightest noise will awaken me, and then I lie awake

again. My brain seems to be on the alert all night long, so that though physically very tired when in bed, I cannot get rested.

"In the morning I am always tired, and more worn out and headachy than when I went to bed. I feel as if I could hardly drag myself about. If I go for a walk, my clothes seem to weigh me down, and at all times my dresses, even the oldest and loosest, seem too tight for me, and oppress me. I am greatly constipated, but occasionally have a slight diarrhœa, though I take no medicine.

"My monthly periods seem to be retarded lately; instead of the four weeks, which is usual with me, I now go for five weeks and over, between the times.

"I forgot to mention that I occasionally have terrible night headaches. I wake in the night with a pain so severe that I cannot raise my head from the pillow, and confidently expect to be unable to rise the next morning. But by morning, the severity of the pain has worn off, and I rise with only my usual dull headache. These night pains are rare, but the suffering is intense when they do come.

"I am also subject to slight nausea on first rising in the morning. This has lasted for months, and I occasionally have it in the night.

"I have a good appetite, and eat heartily for lunch and dinner; I have never eaten much for break-

fast. I eat no pastry, fried or greasy food, or cake, nor any hot bread, except Southern corn-bread, which is very light.

"I used to spend much of my time in studying, but have given it up lately on account of my swollen and heavy eyes, and headaches. If there is anything which I ought not to eat, either on account of my salt-rheum or this redness of the nose, please tell me.

"I would like to ask you, too, whether there is anything that can be done to lessen the odor of the perspiration. I am very cleanly about my person, having all my life taken a cold bath every morning (not in the tub) and a hot one once a week. I change my underclothes every day, and wash with carbolic soap and ammonia; but this odor seems lately *very* strong."

This letter presents a clinical picture which, with a little care, can be more or less verified almost daily in practice, and such cases speak volumes against the narrowness of a specialism which would recognize and treat the local disease of a single organ, and fail to discover the bearings of general medicine in the case. Would anyone attempt to say that the *eczema,* the *acne rosacea,* and the *bromidrosis* in this case had no connection with or relation to the general and other symptoms mentioned? Would anyone really expect to give permanent relief to the skin disorders by local means alone, without remedying

any of the derangements of the other organs, as detailed? But all patients have not the intelligence and observation, or the communicativeness of the young lady referred to, and it will often be difficult to elicit all the information necessary for the proper treatment of some cases. Indeed, it will constantly happen that patients are so concerned in regard to what they ignorantly believe to be the local disease of the skin which gives them annoyance, and are so insistent upon its removal by local means, that they constantly overlook even grave systemic disorders and urge that they are in perfect health; thus it results that the various disorders of which we shall speak will often have to be sought out and analyzed with great care, or they will not be known. It is indeed necessary to have broad views and sound knowledge, as well as the power of patient investigation, in order to properly treat many cases of diseases of the skin.

I. Digestive Disorders. After what has preceded it is not difficult to understand that disorders of digestion are a most important element to consider in connection with many diseases of the skin.

Urticaria and *acne*, perhaps, furnish the most striking examples in this direction, as they are constantly seen to follow promptly upon digestive disturbances. But the same may often be observed in *eczema*, while *psoriasis* will frequently be seen to be

more active when these occur, and the itching of *pruritus* is always augmented thereby; *dermatitis seborrhoica* is continually seen to light up with each attack of digestive disorder, and many patients state that the *hair* falls whenever these occur; *herpes* around the mouth is a frequent accompaniment of what is called a deranged stomach, and even *syphilitic* skin lesions may be seen to be aggravated thereby.

But in many cases the influence of digestive disorders may not be very apparent at first sight, and it will sometimes require considerable persistence to establish just the digestive derangement which is at the bottom of the difficulty; many a patient when first questioned will assert that the digestion is all right, when sufficient investigation will disclose quite the contrary. It is not enough, in many cases, simply to inquire as to the digestion in a general way, for patients are often ignorant of the many signs pointing to its impairment, and if there are not gross indications, such as great distress after eating, they will suppose that all is correct.

As this is a most important matter I must, at the risk of being a little tedious, go over some facts undoubtedly known to most of you but too often overlooked, especially in connection with diseases of the skin. We will briefly consider, in order, the different organs concerned in digestion and some of the in-

dications of their derangement to be looked for.

Digestion undoubtedly begins in the *mouth,* and to have it perfectly performed the process of mastication must be properly carried out. Hurried eating, imperfect mastication, and the undue washing down of the food begin the digestive process, especially of the amylaceous portion, in a wrong manner and render subsequent digestive processes difficult and tedious.

While considering the mouth, we may recall some of the indications it shows of derangement of one or more of the organs concerned in digestion. The condition of the *tongue* is always an element of great importance to consider in connection with very many cases of diseases of the skin, and if properly interpreted can be of the greatest assistance in treatment. This is not the place to go into any extended study of the mouth and tongue in disease, but I must remind you of some of the conditions which may often be of significance in connection with our subject.[1]

We are all, of course, ready to recognize a great coating or furring of the tongue as indicative of some form of digestive trouble, but it is to be remembered that the tongue may often be quite clean or only very moderately coated and yet there may be most

[1] Bulkley. The medical relations of certain conditions of the mouth. Jour. Amer. Med. Assn. Aug. 19, 1905, p. 118.

profound derangement of the digestive organs. A large, pale and flabby tongue indented by the teeth is often indicative of atonic dyspepsia, while a red tongue or one with long, prominent red papillæ shows more acute gastric or liver disturbance.

Not at all infrequently digestive disturbance will be shown by a dry, parched condition of the tongue in the night, or on awaking, and a bitter taste in the morning is often indicative of the same. We must also not forget that an irritative cough in the night, and mucus in the throat in the morning point in the same direction, and likewise that a sweet, metallic, or fœtid breath commonly indicates the same.

Gastric Disturbance. Acute disorder of the stomach is not commonly to be looked for in connection with diseases of the skin, but atonic and fermentative conditions are not at all infrequent in this class of patients, and certainly often play a very important part in relation to their therapeusis.

Again I have to apologize for dwelling upon matters which may be very familiar to many of you, but my experience has been that they are so constantly overlooked in the management of many cases of cutaneous disease in which they are of vital importance, that their consideration may not be without profit.

If patients with diseases of the skin are asked whether they have indigestion, a considerable num-

ber will say that they have not, although some proportion of them will answer that they have, meaning thereby that they suffer from some of the symptoms of primary indigestion which obtrude themselves upon the attention, in ways that are decidedly uncomfortable. Thus, the most commonly recognized symptoms of dyspepsia, pain after eating, or the feeling of a heavy load in the stomach, heart-burn, nausea, acid or fetid eructations of liquid or wind, are familiar to many, and may or may not be mentioned by the patient, if they occur.

But it is a mistake for the physician to suppose that if the patient does not directly complain of these, there is no indigestion; as, in so many diseases of different organs, the special symptoms must be inquired after and sought out, and it constantly happens that the first cursory and general question in regard to the digestion will often be exceedingly misleading, when patient inquiry and repeated questioning will discover quite another state of affairs than had been at first supposed. I need not detail all the possible symptoms indicating gastric derangement, such as palpitation or a smothered feeling over the heart, pain in the left shoulder, languor or drowsiness after meals, etc., but only urge that enough investigation should be made that the true state of gastric digestion should be perfectly understood and correct prin-

ciples applied for the relief of errors of primary digestion, which may have a great bearing in many cases of diseases of the skin.

Just what that bearing may be in every case of cutaneous disease cannot be stated positively. Time would fail to illustrate by cases just what I mean, but I can tell you confidently, from long and close observation and record in private practice, that I am daily seeing illustrations which I am sure would convince the most skeptical. From what has preceded and shall follow in regard to the effect of faulty metabolism in influencing eruptions on the skin, it is readily understood that errors in the first great step in the life processes must be followed by other derangements of nutrition, which in the end act prejudicially on the condition of the skin in health and disease. This applies also to all that shall be said in regard to various functional disorders of other organs.

Hepatic Disturbance. In former times many diseases of various organs, including the skin, were attributed to derangement of the liver; there then came a time of reaction, when this view was contested and more or less abandoned. In later years, as its many functions are studied, the liver is acknowledged to be a very important factor in connection with metabolism, and consequently its derangements are of

much significance in relation to many disorders and diseases of various organs and structures of the body, including the skin.

In the last lecture it was noted how large a part gout and diabetes played in connection with many diseases of the skin, and it is to be remembered that these former only represent the effect of certain metabolic disorders, which again, are largely dependent upon faulty liver action; so that unquestionably the action of the liver has much to do with the occurrence and continuance of many cutaneous conditions, which need not be again recounted here.

Nor will it be necessary or wise to dwell long upon the functional derangements of the liver leading up to this result, which have been so admirably treated of by Murchison,[2] whose little book is as true to nature to-day as it was when written thirty years ago. But I must emphasize a few points which I do not think are commonly enough regarded in connection with diseases of the skin.

Hammarsten says,[3] "The importance of this organ in the physiological composition of the blood is evident from the fact that the blood coming from the

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[2] Murchison. On functional derangements of the Liver. London, 1874.

[3] Hammarsten. A text book of physiological chemistry. New York, 1898, page 206.

digestive tract, laden with absorbed bodies, must circulate through the liver before it is driven by the heart through the different organs and tissues. It has been proved, at least for the carbo-hydrates, that an assimilation of the absorbed nutritive bodies which are brought to the liver by the blood of the portal vein, takes place in this organ. The occurrence of synthetical processes in the liver has been proved by special observations. It is possible that in the liver certain ammonia combinations are converted into urea or uric acid (in birds), while certain products of putrefaction in the intestines, such as phenol, may be converted by synthesis into ethereal sulphuric acids by the liver. The liver has also the property of removing and retaining heterogeneous bodies from the blood; and this is not only true of metallic salts, which are often retained by this organ, but also the alkaloids are retained and are probably decomposed by the liver. Toxins are also retained by the liver, and hence this organ has a protective action against poisons. * * * * * There is no doubt that the chemical operations going on in this organ are manifold and must be of the greatest importance for the organism."

It is readily understood, therefore, that derangement in the action of the liver can lead to disturbances of various kinds throughout the body, as clin-

ical observation has abundantly proved, and the skin as a tissue and as an excreting organ cannot be expected to escape.

The various phenomena, caused throughout the body by wrong action of the liver are more or less familiar to all, but in practice must often be sought for, as patients seldom appreciate all the indications of disease or disorder of different organs, and often think that these can have no bearing on their case: many also have so long suffered from them that they do not consider them amenable to treatment, and so do not mention them.

Murchison, who attributes to functional derangement of the liver, many of the minor ailments constantly found in patients with various skin diseases, presents the following list of symptoms which he believes to be thus caused:

"1. A feeling of weight and fullness at the epigastrium and in the region of the liver.

2. Flatulent distension of the stomach and bowels.

3. Heart burn and acid erudations.

4. A feeling of oppression and often of weariness and aching pains in the limbs, or of insurmountable sleepiness after meals.

5. A furred tongue, which is often large and in-

dented at the edges, and a clammy, bitter, or metallic taste in the mouth, especially in the morning.

6. Appetite often good: at other times anorexia and nausea.

7. An excessive secretion of viscid mucus in the fauces and at the back of the nose.

8. Constipation, the motions being scybalous, sometimes too dark, at others too light, or even clay colored. Occasionally attacks of diarrhœa alternating with constipation, especially if the patient be intemperate in the use of alcohol.

9. In some patients attacks of palpitation of the heart, or irregularity or intermission of the pulse.

10. In many patients attacks of frontal headache.

11. In many patients restlessness at night and bad dreams.

12. In some patients attacks of vertigo and dimness of sight."

Some of these have been already mentioned in connection with gastric disturbance, and others will be noticed later in connection with other matters. Of course it is understood that these and other symptoms occur constantly without cutaneous manifestations, but I have so frequently recorded them in patients so affected, and so continually observed them im-

prove or disappear under the general treatment for the skin affection, and then have found them again as the latter recurs, that I am confident of an etiological association which it is well to remember.

II. Excretory Disorders. Closely connected with the preceding, and of the utmost importance in their relations to many diseases of the skin, are disorders of the excretory organs, the intestines, kidneys, skin, and lungs.

Intestinal Disturbances. The intestines are to be regarded both as digestive and excretory organs, and recent dermatology has assigned a very important place to the part played by disorder of the intestinal tract and auto-intoxication in certain diseases of the skin; this is especially true in regard to *urticaria, acne, eczema,* and the various erythematous eruptions.

It is unnecessary to consider at length the functions of the intestines in digestion and excretion, and I need only remind you that their action depends very largely upon the food, and the manner in which other organs perform their functions.

Constipation is assuredly a very important element in connection with many diseases of the skin, and the action of the bowels should always be given very careful consideration. But it is not enough solely to give purgatives spasmodically, nor to simply

direct the patient that they be kept free; for without specific directions few patients either know the full meaning of this, or are acquainted with the best means of accomplishing the end desired.

This is a large subject, and I do not feel like taxing your patience with all that I would like to say in regard to it; but I must enter into a few details, which are probably familiar to most of you, because of the great importance of this matter as I see it clinically in my daily private practice.

Constipation may arise from many different causes, and requires as many different treatments; and to simply give some favorite prescription, or to be influenced by some of the impudent and often crude and poorly endorsed suggestions of drug firms, who flaunt their newest products or combinations before the credulous and often too easily duped physician, is to fall far short of the really desired object, namely, the securing of a normal, healthy evacuation of the bowels, at the proper time, daily.

In many, constipation is simply from carelessness or neglect. Not being properly instructed as to the importance of having a movement of the bowels daily, directly after breakfast, they let it go to a convenient time, or until the call of nature is too strong to resist. I have seen many patients who have evacuated the bowels only every few days, and occa-

sionally those who will go a week or longer without getting relief.

We know that the intestines, as organs of digestion, have great powers of absorption, and also that the lower bowel is capable of absorbing material from its contents; for patients can live for almost an indefinite period by means of rectal injections. It has long been recognized also that absorption of the alkaloids or some of the elements of fecal matter can take place there, and stercoræmia is a well recognized condition, showing a sallow, muddy skin. Thus, simply by carelessness and neglect, intestinal retention can take place, and this constipation, which is often very difficult to overcome, not infrequently operates very disadvantageously in certain diseases of the skin, notably in *acne*.

But constipation is also sometimes due solely to atony of the muscular coat of the intestine, and will cease under general tonics, or when the system has recovered its normal muscular tone.

In some instances constipation results only from a lack of liquid in the system, and the introduction of a proper supply of water, whether mineral or simply plain water, at stated intervals, in quantity sufficient to secure the proper solubility of the intestinal contents, will be efficient in its removal.

Not infrequently, however, constipation is only

one of the results of the imperfect performance of some of the other organs which have to do with digestion, notably the liver; for it must be remembered that when all the processes of nature are properly carried out there is a natural tendency for nature to remove the waste products promptly; even as the kidneys in health maintain a constant excretion, and the bladder tries to empty itself at frequent intervals.

But it must also be remembered that as the intestinal excrement consists largely, of the refuse of food, or undigested portions of the same, the quality and quantity of the food has often very much to do with the quantity and quality of the bowel excretion. According to Hammarsten[4] "in man the excrement from a mixed diet is from four to five ounces daily, of which from one to one and a quarter ounces is solid matter, while on a vegetable diet it is over ten ounces, with two and a half ounces of solid matter: with a strictly meat diet the excrements are scanty, pitch-like, and colored nearly black by hæmatin and iron sulphide. A large quantity of coarse bread yields a great amount of light-colored excrement." It is, of course, a matter of common observation that the action of the bowels can often be well regulated by

[4]Hammarsten. A text book of physiological chemistry. New York, 1898, p. 321.

food, but it must also be recognized that the average patient has not always the knowledge or the judgment to correctly arrange this, and in the treatment of many eruptions of the skin it is wise and necessary for the physician to give specific instructions in this direction, for the purpose of overcoming constipation. This is one of the ways in which diet may be of importance in certain diseases of the skin, which subject will be more fully considered in the final lecture.

Many patients when questioned if the bowels move regularly will answer affirmatively, when on more close investigation it will be found that there is far from a normal performance of this function. It must be remembered that it is quite possible to have even a daily movement of the bowels with the existence of a very profound constipation, as evidenced by addominal palpation and percussion; and the result of subsequent purgative treatment will often show scybalous masses which have long been retained.

In some patients, also, there will be an attempt at relief by nature, in the way of loose or even diarrhœal movements, alternating with periods of constipation. But it is understood, of course, that this is not a normal state of excretion, and should not be permitted to take the place of that belonging to perfect health.

But constipation is by no means the only abnormal state of the bowel excretion which may be of importance in connection with certain diseases of the skin. Bouchard[5] and many others have shown the many results of auto-intoxication, arising from intestinal fermentation, and *urticaria,* perhaps furnishes the most striking example of its effect on the skin, although dermatologists recognize its influence in other eruptions. This intestinal fermentation is often shown by windy or explosive passage from the bowels, with broken and frequently scanty excretions, and often watery movements of very light color.

My experience has been that patients will rarely go into any details in regard to the matters we have been considering, and it is only by patient and even by repeated questionings that we can learn with any degree of accuracy how this important function of the body is performed: the reasons for this, of course, are not difficult to understand. But my experience has also shown me that these matters are often of the greatest importance in connection with very many cases of different diseases of the skin, and unless they are known, appreciated, and acted upon rightly the best results cannot be obtained.

Urinary Disturbances. Important as it is to dis-

[5] Bouchard. Lectures on Auto-intoxication in Disease. Phila., 1896.

cover and appreciate fully the conditions and rectify the errors of the intestinal action in certain diseases of the skin, it is from the urine that we learn the most in regard to the manner in which metabolism is conducted; and if the teachings of its repeated and careful analysis are rightly interpreted and acted upon we can often obtain therefrom the greatest assistance in the treatment of many cutaneous affections.

It is a rather difficult process to ascertain and analyze the results of catabolism excreted by the intestines, skin, and lungs, and the urine has always been the excretion most depended upon to reflect the normal or abnormal state of the economy. And this rightly remains a most valuable indication of the metabolic changes taking place in the system; for, coming so directly from the blood, it portrays the state of that vital fluid with an accuracy and reliability leaving little to be desired. It is to be remembered that it represents nearly one-half of the total excreta of the body, and practically all of the nitrogenous and soluble mineral substances excreted, together with about one-half of the water expelled from the system.

The relation between the skin and the secretion of the kidneys is a matter of every day observation in medical practice. All are familiar with the temporary changes in the urine which may take place from

a chilling of the surface, or in fever, with a dry, parched skin, and all are equally familiar with the relief given to congested kidneys by free diaphoresis.

The converse, however, has not been as fully recognized and known, and the relations of a faulty kidney secretion to the integrity of the skin and its functions have not been as clearly demonstrated. Unfortunately, we are not yet in a position to demonstrate these relations as definitely as could be desired, but enough is known to show very clearly the immense significance of certain functional departures from health observed in the urine, in their relation to certain diseases of the skin, and likewise the very great value of recognizing them from a therapeutic standpoint.

It will be noted that I have spoken only of *functional* derangement of the kidneys, or "imperfect and deficient urinary secretion," and not of actual disease of the kidneys, and our whole study relates rather to functional derangements in the urine, many of which are quite within the limits of moderately good health. Indeed, among the thousands of critical analyses which I have had made in my laboratory, it is a little remarkable how seldom there has been found real kidney disease, manifested by albumen, or renal casts, or glycosuria, although all these features have been diligently searched for.

Imperfect and deficient urinary secretion can be manifested in many different ways, and all of them should be appreciated and considered, in order to rightly estimate the relations which they may have to disease of the skin or other organs. Not only is it important that the chemical ingredients of the urine should be in the proportions belonging to health, but it is essential that the individual should pass them in sufficient quantity; this is a matter which is often not attended to. In numbers of my patients who thought and stated that they passed sufficient urine, it was found on actual measurement that the quantity was not half the normal amount, and continually it was found that the daily excretion of urinary solids was very far below the normal standard: occasionally far less than one-half the proper amount was being passed.

This very day a lady, weighing 163 pounds, was in my office, with *psoriasis,* who had passed but thirteen ounces of urine yesterday, and has passed as little as eleven, and even seven ounces in the twenty-four hours, and yet appears to be in perfect health and in full activity of life.

The following table gives the relation of body weight of women of average health to the total daily, normal excretion of urinary solids:

Weight	Total urinary Solids	Weight	Total urinary Solids
90 pounds	500 grains	135 pounds	815 grains
95 "	535 "	140 "	850 "
100 "	570 "	145 "	885 "
105 "	605 "	150 "	920 "
110 "	640 "	155 "	955 "
115 "	675 "	160 "	990 "
120 "	710 "	165 "	1025 "
125 "	745 "	170 "	1060 "
130 "	780 "	175 "	1095 "

These figures do not represent much active exercise, and with increased bodily exertion the solids passed should be materially more. Men excrete about one-tenth more than women: there are also less urinary solids passed with advancing age, and about five per cent. may be deducted for each ten years after forty.

It is not a very difficult matter to carry out a plan of learning the total daily excretion of urinary solids, if it is rightly arranged. I have long had it done daily in certain instances, and in others at stated intervals. An ordinary two quart mineral water bottle is used, with a strip of paper or adhesive plaster on the side for a scale. This is graduated by filling it from a two-ounce measure, and marking off each two ounces: the space for the intervening ounce can be

marked by the eye. A glass funnel is kept in the mouth of the bottle, and the urine is poured into it as it is passed. The index is read off, the amount recorded, and the bottle emptied and washed at a fixed hour each day: a sample of the whole is then sent to my office daily, with the statement of the amount passed in the 24 hours.

From the specific gravity of the sample, the total amount of solids passed in the day is easily estimated by Haines' modification of Hasser's method, which is as follows: *Multiply the last two figures of the specific gravity of the urine by the number of ounces voided in* 24 *hours, and add* 10 *per cent. to the product.* Thus, if the amount passed in 24 hours was 36 ounces, with a specific gravity of 1,021, it would be 36 x 21 = 756 + 10 per cent. = 831, the number of grains of solids in the whole amount of urine: by comparing this with the table, it can readily be ascertained if the amount is above or below the normal standard for the body-weight of any patient.

But it is also very important that the *actual quantity* of the urine should be correct: for, even with the proper daily excretion of solids, the life processes are not properly carried out when the quantity is scanty and the specific gravity high. Many symptoms of ill health will often be found to disappear when there is a free flow of urine, of an average normal density,

as is often observed when water is taken freely at mineral springs or elsewhere.

The specific gravity and the quantity of the urine are thus of the greatest value as indications of the manner in which metabolism is carried out, in many patients with diseases of the skin: for, as we saw in the first lecture, even parasitic diseases are influenced by the improper performance of the vital functions of the body.

But the *actual acidity* of the urine, as measured by the oxalic acid and phenolphthalein test is also an element of importance. This is not difficult of application, and can be very quickly done, and is daily used in my laboratory: the litmus paper test tells very little in comparison. Thus, with .3000 as an average standard, we not infrequently find the acidity .5000 or .6000, and occasionally over .10000, or over three times the normal acidity; or it may sink to .2000 or .1000, or even be strongly alkaline. Practical experience has taught me to rely greatly on the results of this test in the administration of drugs or diet.

Moreover, the quantity of *urea* excreted is also a most important element to consider, and often has the greatest bearing upon certain diseases of the skin, and Hardouin[6] has made a remarkable contribution

[6] Hardouin. Ann. de Derm. et de Syph. 1900. p. 1137.

in regard to the elimination of urea in *polymorphous dermatitis*. Making a daily analysis of the urine of 24 hours, over a period of six months, he found that in one case on eight occasions, at pretty regular intervals, there was a fresh eruption after a period of diminished excretion of the urea: the outbreak began a few days after the lowest point of urea elimination was reached, and when the urea was rising. In the second case the onset of the attack repeatedly coincided with the lowest point of urea excretion. Much the same observation has recently been made on a case which has long been in this hospital.

Indican, as found in the urine, can also be of diagnostic and therapeutic significance, as showing intestinal fermentation, which may be at the bottom of an *urticaria,* and may influence greatly *eczema, acne,* and other cutaneous affections.

While the quantity, specific gravity, acidity due to the acid sodium phosphate, and the proportion of urea may be about normal, there are other conditions of the urine which may often be of importance in certain cases of diseases of the skin.

Normal urine, which has been described as a solution of the waste products of the body, is a most complex substance; physiological chemists describe over two dozen organic and inorganic ingredients, in regard to many of which we, as yet, know but little, be-

sides over a dozen pathological elements. But there are a number which are of clinical significance, and which are often of importance in connection with certain diseases of the skin, as I have constantly observed. In addition to urea and indican, already referred to, we may mention uric acid, the chlorides, phosphates, and sulphates, as those most abundant and most commonly investigated among the normal constituents, while the significance of albumen and casts, and sugar, are well known.

Of late years *uric acid* has been a catch-word which has perhaps served a good purpose in directing attention to the results of the faulty metabolism of nitrogenous products: normally it exists in the urine in the proportion of one part of uric acid to 30 to 50 of urea, according to different observers, and varies some with the diet. Much controversy has arisen in regard to its mode of production and relations to urea; and although uric acid yields urea artificially, by heating and by oxidation, it is pretty generally conceded now that it is not, as formerly supposed, an imperfect stage in the production of urea, but is formed independently, with xanthin bases, from nuclein substances, by the cells of the liver and other portions of the body.

Uric acid ordinarily exists in the urine in the form of urates, and its quantitative estimation is a rather

troublesome process, and is therefore not usually attempted. But it is important to recognize when it is quickly formed in the urine, and the excess of urates is always significant in connection with the gouty state and certain diseases of the skin, as are also oxalates, microscopically observed.

The *chlorides, phosphates,* and *sulphates* are relatively easy of quantitative estimation, and occasionally it is of much service in connection with some diseases of the skin to know and watch their relative elimination, although the full significance of their proportionate excretion is by no means accurately known.

Among many thousand complete urinary analyses which have been made in my laboratory, on the lines already indicated, before and since I last wrote on the subject,[7] I have found, in connection with various diseases of the skin, such repeated and continued evidence of imperfect and deficient urinary excretion, which varied with the state of the skin lesions, that I am fully satisfied that there are some etiological relations between the two.

The analytical tables which have been prepared from the reports of these urinary examinations present such a curious and tangled picture, and the labor of interpreting all of them in connection with the

[7] Bulkley. Imperfect and deficient urinary excretion, etc. Journ. Cutan. & Genito-Ur. Dis. 1900, p. 99.

exact clinical condition in every instance is so great, that I cannot now make such definite statements as to relationship as could be desired. But I am firmly convinced that as observations multiply and careful study is given to their analysis, we will find real and tangible relationships existing between renal insufficiency and many of the conditions of the skin to which we give different names as definite eruptions. I may add that in the discussion of one of my papers on this subject[8] a number of physicians corroborated my views, and enlarged upon the importance of recognizing an early departure from normal excretion, which often long precedes actual disease of the kidneys and other organs.

As before stated, it is not possible now to make any decided statements in regard to the urinary changes definitely belonging to different diseases of the skin, but a few notes as to the relations observed may not be without interest and profit.

In *eczema* a very large number of analyses, relating to about 500 patients, mainly adults, rarely showed the conditions of health, if the eruption was of any severity. Not only were many specimens of urine found with a very high specific gravity with-

[8] Bulkley. Transactions of the Medical Society of the State of New York, 1897; Journ. of the American Med. Assoc. Jan. 8, 1898.

out sugar and many very low (without albumen), but very great discrepancies were observed between the morning and night specimens: the highest specific gravity observed was 1.045, in which the urea was double the normal amount, with abundance of uric acid.

The urea and chemical constituents showed the very greatest variations. There were many specimens where the proportion of urea was very high, even up to .041 (normal being .02), and there were also very many specimens where it was below one per cent., even down to .002. The urinary salts also showed very great and strange variations, and no general figures can express the condition found. But the average of a large number of analyses show a marked diminution in the chlorides, to 56 per cent. of the normal amount, and the phosphates to 70 per cent. of that of health. The sulphates were slightly in excess 1.5 per cent. (normal one per cent.).

The disparity between the total amount of solids and the average amount of urea and these chemical constituents, both in the general average, and especially in individual specimens, was very striking, and can only be explained by a large amount of uric acid and other solid ingredients.

In looking over the compiled tables of these analyses one is struck with the universality with which crys-

tralline deposits were discovered by the microscope. The amorphous phosphates were a very frequent sediment, and oxalate of lime, uric acid and the urates were constantly observed.

Acne is a disease which is constantly found to be associated with disturbances of metabolism, and our analyses of the urine showed abundant evidences of these errors. The specific gravity varied from 1.044 (no sugar) to 1.004, and the average of a large number of specimens was 1.025; there were very many specimens at about 1.030. The urea varied from .039 to .004, but was commonly above normal: the average was .022.

As in eczema, the chlorides and phosphates were below normal: the former averaged .51 per cent, and the latter .64 per cent. of that of health. The sulphates were slightly increased, averaging 1.2 per cent. As in eczema it is difficult to determine the elements which contributed to the increased average specific gravity. Almost all the specimens exhibited microscopic evidences of derangement, in the way of phosphates, oxalate of lime, uric acid, or urates.

Psoriasis presented much the same picture in regard to the urinary relations found. The specific gravity varied from 1.040 to 1.011, the average of all specimens being 1.026. The urea was a little above normal, averaging 2.4 per cent. The acidity

was invariably high, and in several recent cases it was repeatedly found over .10000, the normal being reckoned at .3000; oxalate of lime was a very frequent microscopic object, and uric acid and urates often found.

Pruritus, general and localized, is also accompanied by urine of very different characters, the specific gravity being sometimes very high, and occasionally very low, 1.008, the average of one hundred examinations was 1.024. The acidity averaged above normal, as also the urea, 2.4 per cent. The amorphous phosphates were found in almost every specimen. One specimen contained a trace of albumen, and only one showed sugar.

It would, perhaps, be useless to go much further in mentioning the results of our studies, because much the same picture is presented, and also the number of separate cases of each disease was, perhaps, too few to judge from. In several cases of *erythema* the urine was of a high specific gravity, with almost constant presence of uric acid and amorphous urates microscopically. In several cases of *lichen planus* the specific gravity averaged high, but the acidity was low. In three cases of *urticaria* the same was observed. In one case of *alopecia areata* 26 urinary analyses were made, extending over a considerable period of time. The urine was persistently very acid,

and of a high specific gravity, seldom falling below 1.030, and with an average of 1.031; the urea also was very high, yielding an average of almost 3 per cent.: there were constantly microscopic deposits of phosphates and oxalates, with occasionally uric acid. All of this points strongly to the neurotic origin of the trouble.

The results thus far from urinalysis in diseases of the skin have not been as definitely satisfactory as could be wished, but in a measure many writers have corroborated the fact that various and considerable alterations occur in the urine in this class of diseases, which enlarged experience will gradually interpret. In an earlier paper I collected from literature,[9] facts recorded by dozens of observers, relating to the altered state of the urine in no less than eighteen different cutaneous affections.

But the results have been really about what might have been anticipated, for they indicate an impaired metabolism which, as has already been shown, lies at the bottom of the wrong nutrition of the skin, whereby it readily takes on diseased action from various causes, local and internal; and in obstinate as well as in many acute eruptions there will constantly be found some error in the secretion of the urine.

III. Cutaneous Disturbances. The importance

[9] Bulkley. Archives of Dermatology. Vol. II., 1876, p. 1œ.

of the proper action of the skin as an emunctory organ, and as a regulator of the heat of the body, is not sufficiently recognized as an element of health and vitality; but this must never be lost sight of in connection with certain diseases of the skin. We know relatively little in regard to any alteration in the character of its excretions, but there can be no question but that they do vary from time to time, from one cause or another, both in quantity and quality.

The profuse sweats in malaria and at the crisis of fevers, the night sweats of phthisis, the irregular sweats of grip and at the menopause, as also *hyperidrosis,* local or general, are some illustrations of the activity of the perspiratory glands; while undue action of the sebaceous glands is seen in oily *seborrhœa.* Next to the kidneys, the skin in man is the most important means for the elimination of water (Hammarsten).

The altered character of the sweat is observed in the various peculiar odors belonging to many conditions, as in rheumatism and phthisis, also in idiopathic *bromidrosis* and in *chromidrosis,* while its occasional irritating nature may provoke skin lesions in the folds, as in the groins, beneath the breasts, within the prepuce, etc. It is also highly probable that changes in the sweat favor the growth of vegetable

parasites, as in *tinea versicolor* and *eczema marginatum,* and also that of finer micro-organisms, as in *dermatitis seborrhœica* and *furunculi.* Sugar may pass into the sweat in diabetes, and uric acid has been found in the sweat in gout (Hammarsten).

Therefore, the general condition of the skin, such as a dry and harsh, or a damp and greasy state, a firm and elastic or a relaxed tone, its sensitiveness to cold, its tendency or not to active perspiration with heat or exercise, are all elements which have to do with the general health as also with certain diseases of the skin. It is not at all uncommon for skin patients to present some of these departures from health in the general expanse of the skin, and they should always be given due consideration.

There are also some other conditions of the skin itself which may be of importance in connection with special skin affections: thus, jaundice may be accompanied with great *pruritus,* and occasionally with *urticaria,* and *xanthona* is frequently found in those who have been thus affected. A general sallow, anæmic, or cachetic condition of the skin may also often be of much significance, as also a congested state of the cutaneous capillaries. The relaxed condition of the skin, and want of tone in its muscular fibres favors the retention of sebaceous matter in the glands, giving rise to *comedo* and subsequent *acne* lesions. The al-

terations in the skin which are due to advancing age are always of importance, giving rise to *pruritus* and favoring the devlopment of *epithelioma.*

Finally it must not be forgotten that in certain affections, as *xeroderma* and *ichthyosis,* the whole or the greater part of the cutaneous surface is the subject of histological changes which materially interfere with the action of the skin as an organ; this may also be often true in some of the inflammatory eruptions, as *eczema* and *dermatitis exfoliativa,* or even *psoriasis, lichen planus,* and *pemphigus,* when very large areas are affected. The relations of extensive *cutaneous burns* to the intestines, and even to the life of the individual, are also illustrations of the importance of the skin as an organ.

IV. Respiratory Disturbances. While relatively little is known as to the variations in the performance of the work done by the lungs, or their effect on the general system or special diseases, there are often features relating to the respiratory system which may be of much importance in connection with some skin cases. The most notable instance of a relation between the lungs and the skin is found in tuberculosis, in connection with which we find *lupus, tuberculosis cutis,* certain forms of *scrofulous eczema, lichen scrofulosorum,* etc.

First, in regard to the action of the lungs as one of

the most important organs engaged in metabolism: for oxygen is the one element without which life cannot exist, and the transformation of carbonaceous substances and the excretion of carbon dioxide are processes which no other organ can effect. Imperfect or deficient action of the lungs, therefore, must be an important item in relation to the vitality of the skin, as well as of the rest of the body, and the benefit of fresh air and exercise in connection with many diseases of the skin is well known, and should never be forgotten.

But although we cannot show positively that insufficient breathing has any direct causative influence on cutaneous diseases, there are a number of disordered conditions of the respiratory tract which are not infrequently found to be associated with or even related to some diseases of the skin, in a most interesting manner, and in certain instances their existence and continuance may have an important bearing in the case.

Mention has already been made of *chronic catarrh* of the fauces as not infrequently occurring in many patients with diseases of the skin, and indicating gastric or liver disturbance. Not only may this be significant as an indication of the line of treatment to be followed, but it may be important as a disturbing element, by the deranged secretion passing into the stomach, causing still further disorder of the ali-

mentary tract, and thus rendering the case more rebellious.

Bronchitis is a very common accompaniment of many diseases of the skin, and is continually seen to occur coincidently or alternately with *eczema* and *psoriasis,* and as the tendency to the latter pass away under proper treatment the bronchial element will cease. The same is true to a lesser degree of *hay fever,* all which I have myself repeatedly observed.

Asthma has been thought to be very closely related to *urticaria,* and its connection with several other diseases of the skin has been noted by many observers. Several years ago the present writer[10] collected a large number of observations from literature and presented his own experience in regard to the relation of asthma to diseases of the skin, which may be briefly alluded to.

Some years previously Sir Andrew Clark, of London, had thrown out the suggestion that asthma might be closely allied to *urticaria,* if, indeed, it was not a similar production of ephemeral swellings of the mucous membrane; he narrated an interesting and striking case, in which the skin manifestations of urticaria and the symptoms of asthma alternated in a manner which seemed almost conclusive of an in-

[10] Bulkley. Asthma as related to diseases of the skin. British Medical Journal. Nov. 21, 1885.

timate relationship between the two conditions. Mr. George Gaskoin[11] reports that among 2,000 cases of non-parasitic skin disease he found asthma as a family complication in 141 instances, or 7.05 per cent. Of these there were *psoriasis* 65, *eczema* 28, *acne simplex* 10, *acne rosacea* 8, *ichthyosis* 2, etc.

In my own experience, at the time I wrote, asthma was actually found in the records much less frequently than might be expected, from the foregoing: but the difference is accounted for by the fact that my records were those taken in the ordinary run of private practice, and asthma was recorded only when it obtruded itself, and was not specially sought for. Among 4,300 case-papers analyzed true asthma was found mentioned as existing in thirty-seven instances, although in fifty or more additional cases there were symptoms of respiratory difficulty, many of which might rightly be classed as asthma, although the majority were bronchitis; adding some of these it would make about 1 per cent. of the cases that had true spasmodic asthma.

Undoubtedly a much larger proportion would be found if special inquiry were made, and, of course, the number would be very much larger if "family influence" were included, as in Mr. Gaskoin's cases.

Of the thirty-seven cases there were twenty among

[11]Gaskoin. On Psoriasis and Lepra. London, 1875, p. 172.

1,500 *eczema* patients, seven among 948 with *acne,* five among 68 cases of *urticaria,* and in but one out of 196 *psoriasis* cases was it mentioned, although in twenty other cases of psoriasis there were notes of bronchial trouble. Also among the sixty-eight cases of *urticaria* there were eight others with bronchial symptoms, or almost 20 per cent. of all exhibited relations with respiratory disturbance. The conclusions reached by my study may be quoted.

1. Asthma has been observed in patients with certain diseases of the skin, in such a manner as to indicate some occasional relationship between the two.

2. Asthma does not occur, probably, in more than 1 per cent. of all patients with diseases of the skin, and those mainly of the class known as exudative or inflammatory disorders. (It is most common in *eczema* 7.5 per cent., and *urticaria* 7 per cent.)

3. This occurrence of asthma in skin patients cannot be looked upon as a coincidence, nor is the skin disease to be regarded as a cause of the asthma: but both the skin and the bronchial difficulty depend upon the same internal cause, which may be nervous in origin, or may result from some altered condition of the blood.

4. While the theory of the dependence of asthma on a state of spasm of the muscular element of the bronchial tubes has very strong evidence in its favor,

it is still possible that the paroxysms of asthma may be occasioned by sudden and evanescent swelling of the mucous membrane of the bronchioles, partaking more or less of the characters of the wheals of urticaria, occurring both on the mucous membrane of the mouth and on the skin.

We have thus seen, that while derangements of the respiratory tract cannot, as far as is now known, be charged directly with active causative relations to diseases of the skin, they may have a significance and importance in certain cases which cannot be ignored. When physiologists shall have furnished a satisfactory and relatively easy method of estimating the daily output of carbon dioxide, we shall be able to more clearly judge of the errors of metabolism in regard to the carbonaceous foods and waste products of the system in diseases of the skin and other organs.

It is evident, however, that to a perfect understanding of an obstinate case of many forms of diseases of the skin, it is necessary to take cognizance of the condition and action of the lungs. Occasionally patients will be found with sunken chests, and breathing in a very imperfect manner, from carelessness or other causes, and in order to secure perfect oxygenation and vitality it will be necessary to give instruction in breathing, and to see that it is properly carried out.

LECTURE III.

Nervous disorders related to diseases of the skin.—Neurasthenia and eczema, pruritus, and psoriasis.—Sleep in its relation to diseases of the skin.—Nervous and mental shock: eczema, acne rosacea, urticaria, psoriasis.—Reflex phenomena: internal, peripheral. Pruritus, herpes preputialis, urticaria, erythema, etc.—Neuroses: functional, structural: eczema connected with neuralgia, etc.—Myelopathy and encephalopathy; zoster, pemphigus, etc., with spinal disease.—Circulatory disorders related to diseases of the skin; Purpura, scorbutus, hematidrosis.—The heart, blood vessels, blood.—The pulse in relation to many dermatoses.—Pruritus and eczema with hemorrhoidal congestion; eczema and ulceration with varicose veins.—The blood: alterations in certain diseases of the skin.—Sexual disorders related to diseases of the skin: Menstruation, pregnancy, the menopause.—Anæmia, Malaria, Syphilis as related to diseases of the skin.—Relative importance of local treatment and that based on the principles enunciated.

V. Nervous Disorders. The literature which has accumulated in regard to the neurotic relations of diseases of the skin is so great, and also the amount of material which might be presented is so enormous that it is difficult, within proper limits, to say what should be said on the subject. It may be stated, however, without fear of contradiction, that it has been abundantly proven that the skin may and does be-

come affected through the action of the nervous system, and it may be added that this aspect is very important to consider constantly in regard to many cutaneous affections.[1]

In order to better appreciate why and how nervous elements may be of such importance in connection with certain skin lesions, I must ask your attention for a few moments to certain anatomical and physiological considerations in regard to the skin which might be forgotten or overlooked.

The richness of the nerve supply of the skin can be best appreciated by remembering the acute sensibility possessed by every part of the integument; so evenly and perfectly are the nerve filaments and terminal points distributed that the finest needle, or the infinitely smaller and far more acuminate sting of an insect, can be nowhere introduced without causing a sensation of pain.

Not to enter too fully into the microscopic anatomy of the skin, it may be briefly recalled that nerve filaments have been traced to the cells of the rete Malpighii, just below the horny layer, and even among the epithelial cells lining the sebaceous glands—being almost everywhere present. In addition to the

[1] Bulkley. Relations of the Nervous System to Diseases of the Skin. Jour. of Elect. & Neurol. Nov., 1874 and May, 1875.

nerves of ordinary sensation there are also those having peculiar sensory powers, the tactile corpuscles, of Krause, Meissner, and Pacini, which need not concern us just now.

There are also other nerve elements which are of great importance in connection with many diseases of the skin, and these are the vaso-motor nerves, which are distributed to and control the capillary circulation. While these have not been accurately studied and defined, some are believed to be connected with the central nervous system, and others with ganglionic plexuses in the neighborhood of the skin itself. Their effect is seen daily in sudden flushing of the skin, as in blushing, and in blanching of the skin, as from fright or nausea. They undoubtedly play a most important part in connection with many cutaneous affections. The motor nerves are also supplied to the smooth muscles of the skin, and aid in expelling the contents of its glands. Their action is seen in the production of *cutis anserina,* or "goose flesh," from cold or nervous cause.

This brief anatomical consideration will suffice to show the enormous nerve supply of the skin; and this very intimate association of the terminations of the nerves with the cells composing the skin, and with its various component parts, would seem to show that the cells and fibres of the skin are under direct nerv-

ous control, possessing self-existent powers, capable under proper nerve-stimulation of absorbing just enough nutriment to maintain their proper relations, while under perverted nerve control the elements may take on morbid action.

Innumerable clinical observations point most clearly to the very great importance of the nervous element in connection with many diseases of the skin as will abundantly appear later. I need now only mention the distressing character of the *itching* associated with so many cutaneous affections, and remind you of the rebelliousness of *pruritus,* unassociated with skin lesions, and the neuralgia attending *herpes zoster,* to illustrate how serious may be the nerve complication in some of this class of diseases. We will now study the matter a little more in detail.

In most modern classifications of diseases of the skin there is a pretty well defined class of *"neuroses,"* or *"neuritic dermatoses,"* indicating clearly the nervous relations of certain cutaneous affections. Some have attempted to erect a class of *"angio-neuroses,"* where there is evidence of a general disturbance of vascular tension, probably from nerve influence, and also *"idio-neuroses,"* where there are functional anomalies of the cutaneous nerves, without trophic changes in the skin, and further *"tropho-neuroses,"* where there are nutritive alterations in the skin,

caused, or thought to be caused, by nerve injury or disturbance.

But I will not weary you with purely scientific questions, many of which are still controversial, for I only want to make clear the facts which pathology and daily clinical experience demonstrate to be of vital importance in regard to the intimate relations of the nervous system to many conditions of the skin. We will, therefore, not be able to examine all the possible neurotic relations of cutaneous affections, but will consider those which are of most importance in their practical aspects.

I may, however, remind you that skin lesions have been credibly observed to be intimately connected with, or dependent on,

1. Neurasthenia or nerve-exhaustion,
2. Nervous and mental shock,
3. Reflex phenomena; *a,* of internal origin; *b,* peripheral,
4. Neuroses; *a,* functional; *b,* structural,
5. Myelopathy and encephalopathy.

I. *Neurasthenia, or nerve-exhaustion.* This is, of course, a relative condition, varying greatly in degree and dependent upon many causes. But, in one way or another, it is a most important element in connection with a large variety of cutaneous affections,

as could be shown by innumerable instances: one or two illustrative personal cases must suffice.

Miss D., aged 53, the executive officer of a charitable institution, was under my care for some time with *eczema* of the face and hands. The visit of a ladies' committee each Tuesday caused the day's work to be very severe and trying, and the night was often sleepless. On Wednesday there was always either a fresh outbreak of the eruption or a great aggravation of that existing, with excessive burning and itching. This had been the case for some months before I saw her, and was repeatedly observed during treatment.

Rev. Dr. B., a prominent clergyman in a neighboring city, suffered for many years from a distressing *eczema* of the head and face. This was always immensely worse on Monday, after the Sabbath's mental work and strain: it was also particularly bad whenever extra work was demanded, as public addresses in the week, etc., for which he had frequent calls. I witnessed these new or fresh developments of the eruption on many occasions, and his sufferings were intense after each nervous strain. Repeatedly the eruption would yield well, and again burst out after such occasion.

The study of a large number of cases of eczema shows conclusively that, after the infantile period,

there is an immense increase of the eruption, in private practice, in males between twenty-five and forty years, when nervous strain begins to tell, and, in public practice among females, between the ages of twenty and forty, when they so often are carrying the whole of the family burden.[2]

But this result of nerve strain is often shown in many other cutaneous affections, as close observation will continually testify.

Mr. J., aged 39, had *pruritus* of the anus for eight years, and would often create an eczematous condition by scratching and rubbing. He complained principally of the itching and burning, deep in, which he described as the most horrible torture. He feels the distress to be very largely due to the great mental over-strain which he is under, as he has charge of about three thousand operatives, superintending both their work and their dwelling houses, and having charge also of their large Sabbath School. Extra work or anxiety will always aggravate the difficulty immensely, while absence from duty affords relief to the pruritus. Remedies seem useless while occupied, but moderate the itching when in this city and away from home.

A similar case is now under treatment, in an active

[2] Bulkley. Eczema. G. P. Putnam's Sons., N. Y. 1901, pp. 12, 13.

lawyer, who continually speaks of the suffering as "simply awful," when he is under nervous strain; and many more such cases could be cited.

Even *psoriasis* may be affected by nervous exhaustion, and only this week a very intelligent and bright lady volunteered the statement that whenever she was nervous the eruption, or new spots, were sure to appear.

Mr. B., aged 53, has had *psoriasis* for 50 years. His father had it, also his oldest son: his second child, likewise a son, has psoriasis and asthma, the asthma being better when the psoriasis is out: his third child, a son, died at the age of twenty-two, feeble and idiotic, psoriasis developing just before death: the sixth and seventh children, both daughters, have psoriasis. The seventh, aged 15, was under my care: she is very nervous, and the eruption is very itchy.

Mr. S., aged 33, a very intelligent gentleman, a dentist, has long noticed that when he gets nervous, worried, and constipated, his *psoriasis* is sure to appear.

I will not weary you with further illustrations of the influence of nervous exhaustion on many cutaneous affections, which could be multiplied indefinitely, but I wish I could impress the matter on you, as I see it daily in private practice. Remember, however,

that it is the patient that is neurotic, rather than the eruption, and that to do the best possible for the latter, you must certainly recognize and relieve the former condition.

I must here remind you that *headaches* are often of importance in their relation both to the nervous and metabolic conditions found in many patients with certain cutaneous affections. Their significance in early and late syphilis is well known, and as indications of eye strain, brain-fag, malaria, constipation, intestinal fermentation, ovarian and uterine disease, etc., they should never be overlooked in these cases.

In connection with nervous exhaustion in patients with diseases of the skin, the matter of *sleep* should never be neglected: indeed in my private practice it is an element which constantly receives a great deal of attention, often at every visit, and one which I consider of the greatest importance in connection with very many patients thus affected. As an indication of the line of thought pertaining to this subject, I would like to present the conclusions which I recently gave in a rather extensive article on the subject.[3]

1. *Sleep* is an exceedingly important factor to consider in connection with many diseases of the skin,

[3] Bulkley. Sleep in its relations to diseases of the skin. The Medical Record, November 20, 1895.

disorders of sleep occurring both as a contributing cause and as an effect of the same.

2. The disorders of sleep occurring in patients with diseases of the skin may arise from many different conditions: the six principal causes may be classed as, *a,* digestive; *b,* toxic; *c,* circulatory; *d,* nervous (direct or reflex); *e,* psychic; and *f,* cutaneous.

3. These causes of disturbances of sleep should be searched for and relieved, because of the injury resulting from imperfect sleep, in producing or aggravating many diseases of the skin.

4. In cases where the sleep disturbance is caused by the disease of the skin, the effort should be made to get relief to the insomnia by proper internal and external treatment of the skin affection, before resorting to hypnotics; attention to details is often very necessary to secure this end.

5. Preparations of opium may be resorted to when the disturbance of sleep is caused by pain connected with the skin disease, but these are useless or harmful when the wakefulness results from itching. Chloroform or ether are not to be advised for this purpose.

6. Some of the newer, so-called anti-neuralgic and hypnotic remedies are often of great service in quieting the general irritation and inducing sleep in skin patients, and gelsemium and cannabis indica in-

ternally are also valuable to control itching. It is often desirable to give repeated doses, at half-hour intervals, until the desired effect is produced.

If time and space permitted I could give you abundant confirmation of each of the above points, and any number of illustrative cases where disturbances of sleep caused an aggravation of eruptions or even their fresh appearance; and every one knows of the nervous exhaustion which comes when the sleep is long broken by severe itching or by painful skin lesions.

Our limits also will not allow us to enter fully upon the other aspects of the nervous relations of many diseases of the skin, presented in the brief classification already given, but a few points must be spoken of to make the whole matter clear.

2. *Nervous and mental shock.* Many instances are recorded in literature of the effect of nervous and mental shock in causing changes in the skin; perhaps the most striking are those cases where the hair has turned white in a single night, from fright or fear, and all of us have observed the more or less greying of the hair from similar causes. This subject of the effect of sudden emotion upon the skin has been studied by many observers, Meyer, Leloir, Tommasoli, Radouan and others, and *eczema* has repeatedly been recorded by accurate observers as caused by profound

nervous shock. I have frequently been told by patients that fresh outbreaks of *eczema, acne rosacea, urticaria,* and even *psoriasis* have followed fits of anger or great excitement.

The manner in which both nervous exhaustion and nervous shock causes eruptions on the skin is still undecided. Possibly it is largely through interference with digestion and proper metabolism. But if, as is acknowledged, these influences can disturb proper cell action in the organs which minister to the life of the individual, why can they not equally influence the cells or component parts of the skin? In the light of what we know of the intimate distribution of nervous elements to the tissues of the skin, and the direct influence of the sympathetic and vasomotor nerves in the economy, and in the light of what shall follow, it is more than probable that many skin lesions are the direct result of nerve action on the structures of the skin itself.

3. *Reflex phenomena: a,* of an internal origin, *b,* peripheral. The simplest and perhaps the most frequent instance of the reflex excitation of *eczema* is that observed in teething infants, in which each accession of a tooth will cause a fresh outbreak of eruption in various localities, but especially upon the face. Many cases have been reported of recurrent

eczema due to eye strain, of which I have seen a number of striking instances.[4]

Many observers have recorded most interesting cases of various skin affections where reflex influence was clearly manifest. The most commonly acknowledged instance of reflex irritation is found in *pruritus* of the anus, and nose from intestinal worms. *Itching* of the anus and also *herpes preputialis* are not infrequent results of urethral stricture and irritation. In a later section we shall see that reflex irritation from the female genital organs is a frequent cause of lesions on the skin. *Urticaria, erythema, acne rosacea,* and other cutaneous affections have also been traced, by reliable observers, to reflex influence.

Even peripheral, or local irritation of one portion of the skin, may give rise to reflex nerve excitation or possibly to actual skin lesions. Every patient who has suffered much from any kind of itching, recognizes the fact that scratching of one part will constantly be followed by the sensation of itching in another locality, a study of which reflexes I made some years ago;[5] this reflex cutatneous irritation accounts for much of the eruption often attending *scabies,*

[4] Bulkley. On the relation of eczema to disturbances of the nervous system. The Medical News, Phila., Jan 31 & Feb. 7, 1891.

[5] Bulkley. Clinical notes on pruritus. Journ. of Cutan. and Gen.-ur. Dis. Dec., 1887.

phthiriasis, etc., and is also accountable largely for the development of *eczema* in many regions.

But there are also on record some observations of skin lesions on distant parts caused by local injury or disease of another portion of the skin; and this need not surprise us when we remember the shock attending extensive burns, as well as the subsequent tendency to visceral congestion and intestinal ulceration.

4. *Neuroses: a,* functional; *b,* structural. Neuralgia, like neurasthenia, is a rather indefinite term, with little or no established pathology but a very large clinical history; and abundant evidence exists to establish very close relationships between neuralgia and many diseases of the skin.

The most striking illustration is found in *herpes zoster,* where the neuralgic pain is often such a distressing feature. This eruption, as is well known, is a neurosis of the clearest type, being due to an acute descending neuritis, generally originating in the spinal ganglia of the nerves involved;[6] it furnishes, therefore, the strongest proof of the production of an eruption solely through nerve influence, even to the extent of ulceration and scars.

Many writers have reported observations of the connection between neuralgia and various skin af-

[6] Bulkley. A clinical study of herpes zoster. Amer. Journ. Med. Sci. July, 1876.

fections, which cannot be dwelt on now. Many instances are on record of *unilateral sweating* over neuralgic tracts, and all are familiar with the streaks of *grey hair* often found in such localities. I must give one personal instance where *eczema* was connected with neuralgia in such a striking manner as to leave little doubt in regard to the relation between the two.

Mrs. B., a widow, aged 30 years, was thrown upon her own resources for the support of herself and mother. She took to literary pursuits and became editor of a magazine, requiring a large amount of personal work, she using the pen almost constantly. After some months she began to suffer from neuralgia of the right arm, and at the same time a papular eczema developed only on the back of the right arm and the radial side of the forearm, attended with most intense itching. When she ceased for a time from the great use of the hand, the neuralgic pain lessened and the eruption diminished; but a return to her severe application to work would cause a return of both, as I repeatedly observed. This continued for some time, and treatment for either condition was relatively ineffective while the arduous labors were persisted in, but yielded quite readily when work was relaxed or suspended.

The occasional association of *urticaria* with ex-

ophthalmic goitre[7] is also an interesting illustration of the possible occurrence of skin lesions from disease or disorder of the sympathetic.

The evidence of nerve influence on the skin is even more apparent in *structural neuroses,* that is where there has been injury or disease of conducting nerves, to which we have time to barely allude.

Many observers have reported cutaneous alterations from this clause, the most striking, perhaps, are those specially dwelt on by Mitchell, Moorhouse, and Keen in connection with gun-shot wounds. In addition to the "glossy skin" originally described by Paget, there may occur *vesicular* lesions and *alterations of the nails,* or ulceration around the nails. The same has also been repeatedly observed from compression of conducting nerves. The prodromal and associated neurotic phenomena of *leprosy,* and its skin lesions, taken in connection with the changes found in the nerve trunks, also illustrate forcibly this direct influence of nerve disturbance on the skin.

5. *Myelopathy and encephalopathy.* Charcot and many others have reported various cutaneous alterations consequent upon injuries and diseases of the spinal cord, and this possibility is now pretty generally recognized. While the lesions have often par-

[7] Bulkley. Exophthalmic goitre and urticaria. Chicago Journ. Nerv. & Ment. Dis. Oct., 1875.

taken of the character of *zoster* or *pemphigus,* various other eruptions have been noted, *erythema, urticaria, eczema, exfoliative dermatitis,* pustular eruptions resembling *ecthyma,* etc., as well as alterations of the hair and nails. The details of many of the reported cases are most interesting, but our limit of time will not allow of further mention.

Very little has been reported in regard to the relation of affections of the brain to those on the skin, but enough cases are on record to show that such may occasionally exist. The observation has repeatedly been made that *eczema* is frequent among the insane, and that when the mental condition is obstinate the eruption is also rebellious; and also that when the eczema is readily cured, there is reason for a more favorable prognosis for the mental derangement; other eruptions have also been reported as due to this cause. The growth of *superfluous hair* on the faces of female insane patients is a well-recognized fact. Eruptions of *zoster* and *erythema* have been reported in connection with apoplexy, and some have recorded eruptions apparently dependent upon epilepsy.

We have thus seen, first, that direct nervous influence of various kinds may have a very active effect in producing changes in the tissues of the skin, to which, for convenience, we give the names of different dis-

eases; and, second, that it is often very important to recognize these relations, in order to be of the greatest service to the patient and often in order to cure the skin affection which we are called on to treat. While many of the eruptions named (and others could be cited as exhibiting nerve influence) cannot be properly classed as truly neurotic, and while local agencies undoubtedly have much to do with the production and continuance of some of them, there may be, and frequently is a nervous element in the patient which will have much to do with their obstinacy.

VI. Circulatory Disorders. With the enormous capillary blood supply of the skin, so perfect and complete that it can be nowhere punctured without causing hemorrhage, one would naturally expect that circulatory disturbance would have some relations to disease of this organ; this we find to be the case, although this subject has not been studied as much as some others.

I have already called your attention to vascular disturbances associated with vaso-motor nerve derangement, and these phenomena will constantly be observed in connection with cutaneous affections, and should never be neglected. No better illustration of this could be found than in the case detailed in the letter from a patient, presented in the second lecture. There, while the hands and feet were icy cold, the

nose and face were throbbing, hot, and red; and this observation could be verified by scores of histories of other patients, exhibiting various skin lesions. The cold, clammy condition of the hands and feet so commonly observed in young persons with acne,[8] often affords a valuable therapeutic hint of the necessity of vascular tonics, and its improvement under proper constitutional treatment is frequently quite indicative of the probable yielding of the tendency to the eruption.

Many of these vascular disturbances are the result of reflex conditions, which must be sought out, and many are caused by disorder of some of the other organs or systems considered in these lectures.

But there are also other, more definite circulatory disorders, which may be of importance in connection with certain skin affections, which we will briefly consider: *purpura, scorbutus,* and *hæmatidrosis,* or bloody sweat, are illustrations of the hæmatic relations of some conditions of the skin.

The study of circulatory disorders in their relation to diseases of the skin concerns the condition of 1, The heart; 2, The blood vessels; and 3, The blood itself.

Actual disease of the *heart,* as far as I know, is

[8] Bulkley. Acne, its Etiology, pathology, and treatment. Putnam's Sons. New York. 1885.

not directly connected with any cutaneous affections, but functional disorder is constantly manifested, and tachycardia, bradycardia, irregularity, and palpitation are frequently observed, and in certain cases will seem to influence the eruption. A weak, flabby, perhaps dilated heart, will often be a factor of ill health which will militate against the cure of a skin trouble, as will also an irritated, perhaps hypertrophied organ.

The condition of the *blood vessels,* however, and of the circulation in them, has many relations which are most important in connection with certain diseases of the skin, perhaps far more than have been hitherto appreciated; blood pressure is being studied with advantage in many diseases.

The *pulse,* therefore, which has always been considered an important factor in the study of many diseased conditions of the body, should never be neglected in connection with most patients with affections of the skin. It certainly gives valuable information in regard to the action of the heart and blood vessels, and as to the general tone of the patient's health. It is not necessary to dwell on this, before such an audience, but I must elaborate the matter a little, that you may see as I do, some of the features of importance in connection with this subject.

There is surely a difference between the manner in

which pathological processes in the skin behave when the circulation, as indicated by the pulse, is normal, and when it is sluggish, or weak, soft, and compressible, or when it is hard and throbbing from high arterial pressure; and also between the nutrition carried on by blood vessels in a normal, resilient state and when they are hardened by atheroma.

There is time to dwell on only a few illustrations of the real connection between disturbed circulation and certain cutaneous affections.

All are familiar with the effects of cold in producing *chilblains,* and with the changes in the face caused by exposure to the weather, resulting in a more or less permanent capillary dilation or *rosacea.* The same enlargement of blood vessels is seen in long standing cases of *acne rosacea,* while the various forms of *telangiectasis, vascular nævus,* and *angioma* exhibit blood vessel alteration from unknown cause. We are also familiar with the very serious alterations of tissue in *Raynaud's disease,* from spasmodic vascular alteration.

Pruritus and *eczema* of the anal and genital region are constantly found to depend upon hemorrhoidal congestion, and the connection between varicose veins and *eczema* and *ulcerations on the lower extremities* is known to all.

Hyde[9] has recently illustrated very clearly the connection between changes in vascular equilibrium and certain dermatoses of the hands and feet, such as *hyperidrosis, dysidrosis, keratosis, changes in the nails,* etc., and a careful study of the subject will show that many affections of the skin are intimately associated with and more or less dependent upon a faulty vascular supply. Certainly the blue, livid skin often seen on the extremities of flabby individuals has often much to do with the obstinacy of some eruptions.

But the character of the *blood itself* has also been shown to have very important relations to certain diseases of the skin, which we have time to hardly touch upon.

Much has been written by Haig and others in regard to the presence of uric acid in the blood, and its influence on body tissues. This is not the time or place to discuss the truth or fallacy of the theories which have been put forth in regard to the mode of production of uric acid or the possibility of its circulating in the blood. Suffice it to say that there are changes in the composition and alkalinity of the blood which certainly have an influence on the skin

[9] Hyde. Transactions Amer. Derm. Assoc. 28th An. Meeting, 1904, p. 63.

and other tissues, although not much has yet been definitely determined in this direction.

Studies in regard to changes in the blood have been largely confined to its solid constituents, and relatively little is known in regard to the *plasma,* which forms fully one-half of the volume of the blood, and is recognized as the chief carrier of the products of metabolism. Chlenoff[10] has made some researches on the alkalinity of the blood in thirty patients with various skin diseases, the blood being taken, when possible, two hours before dinner. In a number of general eruptions, *lichen ruber, erythema multiforme, eczema* (acute and chronic), *psoriasis,* and some others, the alkalinity of the blood was lowered. Haig[11] still adheres to the view that colloid uric acid produces changes in the skin through defective capillary action, and also by the local irritation induced by precipitation of uric acid in fibrous tissues. When the deposit is in the vessels the circulation is sluggish, the skin becomes dry and harsh, and slow to heal, the culmination of such a condition producing *Raynaud's disease.* When the uric acid is deposited in the tissues, there is increased circulation, resulting

[10] Chlenoff. Vratch. St. Petersb., 1890. Vol. XIX, pp. 248-252.

[11] Haig. Uric acid: an Epitome of the Subject. Phila., 1904, pp. 66, 99.

in such eruptions as *eczema, psoriasis* and other forms and conditions of skin irritation.

But much has been done in studying the changes in the *blood cells* in various diseases of the skin, and although definite conclusions have not been reached in regard to many of them, enough has been accomplished to indicate the importance of alteration of the solid constituents of the blood in connection with certain cutaneous affections. As an illustration it may be mentioned that eosinophiles are constantly found in abundance, in connection with certain eruptions of the bullous type, with an elimination of eosinophiles in the contents of the blisters of *pemphigus,* etc.; Lerrede questions if eosinophilia is ever lacking in *dermatitis herpetiformis.*

The subject of *lymphatic disorders* should be considered here, as it is largely through the lymph that metabolism is carried on, but time permits of hardly the briefest mention of the subject. I will only remind you of the important part which lymphatic disturbance plays in *elephantiasis,* and in certain other affections, as *lymphangioma;* lymph stasis also accounts for some of the changes seen in *chronic eczema,* especially about the lower extremities.

VII. Sexual Disorders. The changes which occur in the skin at puberty, and the common observation of *acne* about this period, in both sexes, would

seem to point to some connection between the skin and the sexual organs, and abundant evidence has accumulated showing a very intimate relation between certain cutaneous affections and disorder of the generative functions. These are naturally much more pronounced in the female than in the male, as the functions connected with reproduction form such an important element in the life of the former. I will briefly call your attention to some of the cutaneous phenomena connected with: 1, Menstruation; 2, Pregnancy, and 3, The Menopause.

1. *Menstruation.* The amount of material which has appeared in literature showing a connection between menstruation and conditions of the skin is so great, that it is difficult to even briefly say what should be said on the subject, much of which I could confirm from personal observation.[12] For over ten years I have kept a special book of record in which I have noted cases in private practice in which these relations were very evident; in this I find nearly a hundred instances, relating to many different diseases of the skin, in addition to scores or perhaps hundreds of cases of *acne* and *eczema* in regard to which it was not deemed necessary to make special record.

[12] Bulkley. The influence of the menstrual function on certain diseases of the skin. Rebman, New York and London, 1906.

Many of these cases were watched over some period of time, and the influence of menstruation in producing, or aggravating eruptions was observed time and again.

Many observers have reported the recurrence of *herpes,* either on the lips or in the genital region, or elsewhere, with each menstrual period, often over a considerable length of time, and a number of cases are on record where a true, infective *erysipelas,* with a high temperature, has been observed to recur repeatedly with each menstruation. *Eczema* has also been frequently reported as greatly influenced by menstruation, and over a dozen other cutaneous affections are on record, often many cases of each, where most striking relations to the menstrual epoch were observed; among these are *pemphigus, urticaria, angio-neurotic œdema, erythema, purpura, pruritus,* and many others.

In the majority of the instances recorded little or no report is made as to the character of the menstruation, or if it was recognized as deranged, and undoubtedly the occurrence of the normal "menstrual cycle" which terminates in menstruation can, in those so disposed, excite disorder in the skin. But the fact that these menstrual cutaneous relations are relatively infrequent, and do not invariably reappear in the same individual shows that there is probably some

derangement in this function, as in the ovarian secretion, which possibly may not be otherwise recognized; but, on the other hand, these cutaneous manifestations often occur in those who suffer from great menstrual disturbances, in the way of dysmenorrhœa, menorrhagia, amenorrhœa, etc. In some instances of the latter an eruption has been noticed each month, at the time when the absent menses should appear.

2. *Pregnancy.* All are familiar, of course, with the *chloasma* of pregnancy, also occurring in connection with uterine and ovarian disease, and with the *pruritus,* local or general, which is sometimes so distressing at this time. Hebra states that in some females *eczema* of the hands occurs so uniformly when they become pregnant that they can tell more certainly when they are with child by the appearance of the eczematous eruption than by the cessation of the menstrual discharge. *Acne rosacea* will also sometimes develop with each pregnancy.

But one of the most interesting exhibitions of the influence of the gravid uterus upon the skin is found in what is known as *herpes gestationis.*[13] In this the pruriginous and vesicular or bullous eruption appears at a varying time after conception and lasts until de-

[13] Bulkley. Amer. Journ. Obstet. and Dis. of Women and Children. Feb., 1874.

livery, when it promptly ceases, often to reappear with successive pregnancies.

3. *The Menopause.* Very many women about the time of the menopause experience some cutaneous manifestations, in the way of *flushings or sweatings,* or both, which may prove very annoying or even distressing. Also at this time *acne rosacea* is rather frequent and obstinate, as well as *eczema.* After the menopause *superfluous hair* is apt to appear on the face.

In all the sexual relations with the skin which have been mentioned there are probably other factors also at work combinedly to induce the eruption, but of the facts in regard to the occasional relations referred to there can be no doubt, for they have been repeatedly recorded by many competent observers.

The sexual relations of diseases of the skin in the *male,* are, as was remarked, less frequent than in the female, but enough has been observed to show that they may at times be important. There is little doubt that sexual abuse does induce the development of *acne,* and patients will frequently note that the eruption is worse after the occurrence of a seminal emission. It has been recorded that *acne rosacea* which had previously resisted all treatment ceased after the repeated passage of urethral sounds. The connec-

tion between stricture of the urethra and *herpes genitalis* and *pruritus ani* is well recognized.

There remain yet a few more general matters to consider, which do not properly belong to any of the previous divisions, but which are often of great importance in connection with many conditions of the skin: these are Anæmia, Malaria, and Syphilis.

VIII. Anæmia. Debility and lowered vitality, often with demonstrable spanæmia, are undoubtedly frequent predisposing causes of many eruptions, and should be carefully sought for. This was mentioned in the first lecture, but it is so important that I want to impress the subject more firmly by a quotation from Hebra, who has so often been regarded as the exponent of the purely local pathology and therapeutics of skin diseases. He says:

"For example, we see an *eczema* on the hands and forearms of a young girl who has been engaged in washing soiled linen, and we declare that the origin of the eczema is in the action of the lye, soap, hot water, and friction. Now at the same time with this girl there are many other females washing the same linen in the same lye, using the same soap, etc., without acquiring eczema. Indeed, this very girl who now has eczema, has for many years been exposed to the same influences without becoming affected. What is the general cause of her susceptibility? A careful

examination of her general condition will give the explanation. The girl who before was healthy, robust, and regular in her menses, has become sluggish and languid, her appearance is pale and bloated, her menstruation is profuse; in a word she has become chlorotic and thereby eczematous. The remedies suitable for the chlorosis are now employed; the appetite and power of work return, the menses become regular, and the eczema disappears in spite of the continued washing and exposure to the influence of the agencies causing it."

The same observations could be made time and again in regard to *acne* and many diseases of the skin, and undoubtedly a very considerable share of the gain obtained from visits to watering places may be accounted for by the improved blood condition thereby acquired.

IX. Malaria. Not only by its indirect influence in producing hepatic disturbance and anæmia can malaria induce cutaneous disorders, but it may sometimes have a very direct effect in this direction, as has been shown by several observers.

Occasionally *urticaria* is seen to be distinctly periodic, and to be entirely controlled by the proper use of quinine in efficient doses, as I have myself observed. In a number of cases of *eczema* I have noticed that the paroxysms of itching came on at a reg-

ular time of day, and I have been able repeatedly to check these and to materially benefit the eruption, by the free use of quinine before the expected attack. In rebellious eruptions, therefore, the possible influence of malaria should never be forgotten, and quinine, taken half an hour before meals, often serves as a most valuable tonic in connection with many diseases of the skin, possibly because of eliminating a greater or less malarial element.

X. Syphilis. In most dermatological statistics somewhere near ten per cent. of all cases are recognized as directly due to syphilis, and, of course, require appropriate specific treatment. But in a certain small proportion of other cases, of various cutaneous affections, we sometimes find a trace or remnant of old syphilitic infection, or hereditary influence, which complicates what might be considered an ordinary non-specific eruption; and there will occasionally be found a surprising benefit from a longer or shorter course of carefully directed anti-syphilitic treatment.

In suspecting or recognizing a syphilitic element in any eruption do not be deterred because of the absence of any history of venereal infection; for you will recall that in the clinics I have shown you, from time to time, patients exhibiting extra-genital chancres in different localities, acquired in the most innocent manner, and these patients, as also those who

have been infected with syphilis in marriage, are often quite ignorant of the nature of the trouble.[14]

But, on the other hand, I must give the caution not to be too ready to suspect eruptions to be syphilitic which are not. For even in patients who give a history of the disease we often have non-syphilitic skin lesions, and I have seen many lamentable instances where the mistake has been made, as also very many where the real presence of syphilis had not been recognized. But these matters pertain rather to the clinical aspect of our subject, which I have often tried to demonstrate clearly during the winter course.

We have now gone over the matters which should always be in your minds in approaching very many cases of cutaneous affections, but I have to tell you that we have barely scratched the surface of the subject. I have tried to present some of the more prominent features concerning the relations between diseases of the skin and internal disorders, but for want of time the examination has been very brief and hurried. Each of the topics presented could easily and profitably be elaborated not only into an essay but into a book, and if one should attempt to present any reasonable portion of what is found in literature on

[14]Bulkley. Syphilis in the Innocent. New York, 1894.

each of the subjects, the books would be very large.

Enough has been said, however, to give food for thought and study, and if you will keep in mind the practical bearing of much that has been said, and act accordingly, I am sure that you will have better success in dealing with cutaneous ailments than if you follow a routine practice, or accept the dictum of any one who says that this or that is "good for diseases of the skin."

In our next lecture I will try to make practical application of what has preceded, in the line of Diet, Hygiene, and Constitutional treatment. You will understand, of course, that while local treatment has necessarily been omitted from our consideration in these special lectures, the importance of exactly proper measures cannot be overestimated. But I must tell you, as I have often said before, that in a considerable proportion of instances, if I had to choose between an exclusively local treatment and one based solely on the facts and principles I present in these lectures, I should very certainly choose the latter, as being most likely to conserve the best interests of the patient, and to secure the best ultimate results in regard to many cases of diseases of the skin.

LECTURE IV.

Deductions from the facts presented.—Syphilis; treatment of patient as well as disease.—Importance of general matters in many diseases of the skin.—Diet as related to diseases of the skin. Erroneous views: definition.—Quantity of food: distinction between appetite and taste.—Milk; errors in use: correct method of taking.—Quality of food: meat, fish, fats and oils; sugars and starches, vegetables, fruits; cereals: wheat, rice, oatmeal, etc. Tea, coffee, chocolate. Alcohol; tobacco. Water, mineral waters, soups.—Mode of preparation of food: fried articles, pastry and cake.—Time and method of consumption; Hurried eating, nervous strain.—Hygiene in relation to diseases of the skin. Occupation rest; time and hours of sleep. Atmospheric conditions; clothing; exercise; massage.—Bathing: Turkish, Russian, and medicated baths; sea bathing.—Mineral springs: their use and abuse.—General Therapeutics in diseases of the skin.—Broadness of proper dermatological treatment; errors.—Digestive and excretory disorders; treatment of.—Neurotic treatment: drugs; electricity.—Lowered vitality; errors in giving tonics.—Importance of skin lesions, as frequent indications of serious systemic disease.—Importance of correct local treatment.

If the facts which I have stated in the preceding lectures are true, and if the principles which I have inculcated are correct, I think that you will agree with me that dermatology is a wide field, reaching well into all branches of medicine. And I

think that you will also agree with me in the definition which I gave of a good dermatologist, as one who understands the skin as well, and all that is within it.

I trust also that these lectures have led you to a broader view of dermatology, and that they will help to a better understanding of some of the apparent mysteries of it, and why all eruptions do not get well under arsenic internally and zinc ointment externally.

In the clinical demonstrations and lectures which have preceded these special lectures, I have endeavored to point out the diagnostic features of all the cases which could be presented, and have detailed, in a measure, the most successful local treatment, and you have been able to see the results, when the cases have been shown at subsequent lectures. I have also tried, from time to time, to indicate the proper diet and internal treatment, of which you have also witnessed the effects.

But, as explained in the first lecture, it was not possible in the allotted time to go into all the details regarding the real internal causes and relations of many of the cases, or the reasons for the treatment given, which, I suppose, must sometimes have seemed rather empirical. But, as one accustomed to investigate and analyze such cases in private practice, and

to judge rapidly from the few data obtained in public practice, I assure you that there were good reasons for the prescriptions and directions given.

In these special lectures I have endeavored to place you upon the same ground as myself, and to show you the elements which should properly be recognized and given due consideration in connection with the various affections of the skin which have been mentioned from time to time, and perhaps with some others. In this concluding lecture I wish to make application of some of the facts and principles heretofore presented in regard to the practical management of certain diseases of the skin, and to consider briefly some points in regard to the Diet, Hygiene, and Internal treatment of this class of affections.

It will be understood, of course, that all that is said presupposes a correct local treatment being given, which manifestly cannot be entered upon here.

If you have followed me in the preceding lectures, and appreciate the import of the various statements made and deductions to be drawn, you will be ready to realize that there is not, nor ever can be, any one remedy or line of treatment of peculiar service in all diseases of the skin, nor can exactly the same treatment reach all cases of the same disease—even if advertisements of proprietary remedies seem to indicate the contrary.

The first deduction from our study is that each case of disease of the skin is to be treated on its own merits. While, undoubtedly, a correct diagnosis is an all-essential element in the successful treatment of cutaneous diseases, they are not to be treated necessarily according to the name given to the disease, but according to the condition actually present and with due regard to the many possible states or conditions of the patient which have been previously discussed. This is a fact or principle which is far too often lost sight of by many.

The second deduction is that unless a patient with a cutaneous lesion is studied pretty carefully in all directions, there will be danger of overlooking some items or features which may have a very important bearing on the case. Abundant illustrations have been given of the very intimate connection with, or even dependence of certain cutaneous affections on disorder or disease of some other portion or system of the body, which if not attended to either renders the skin affection exceedingly obstinate or incurable, or results in greater or less harm to the patient.

A third deduction is that, although local treatment may at times seem to give brilliant results, it is useless to expect permanent effects if the underlying causes are allowed to remain. It is easy, therefore, to see why diseases of the skin, in times past, have

often been regarded as necessarily chronic, rebellious, or even incurable.

We will now turn to the consideration of some of the elements relating to the proper constitutional treatment of the class of affections which we have been observing this winter. In this I shall naturally have to deal in generalities, although you know that in my lectures I have been very definite and positive in regard to the treatment prescribed for individual cases in the clinics.

First let me say a word in regard to *syphilis,* of which we have seen many cases, but of which I have said very little thus far, in these special lectures. It is a mistake, I think, simply to regard syphilis as an infective disease, for which there are two remedies, mercury and iodide of potash, which need only to be given in sufficient quantities in order to have the patient recover.

This I consider a grave error, which has often cost many a one much misery and even life. In the proper care of a syphilitic, during a prolonged course of treatment, it may be necessary to use many remedies and measures, some of which have little direct influence on the poison, although they may have the greatest bearing on a complete recovery from the malady.

You have seen in the clinics a number of cases of

precocious and malignant syphilis, which were such not from anything peculiar in the virus acquired, but from the broken-down condition of the patient's health. It is not enough in such cases simply to give mercury or iodide of potash, or both, nor simply to administer what are commonly called tonics. The syphilitic patient is to be studied as any other, and a thousand-and-one things considered which may conduce to his or her good or bad health; careful directions should also be given as to diet and hygiene, together with such medication as shall place the system in the best condition to resist the effects of the poison and to assimilate the proper specific remedies. In some instances only a complete change of air and scene will suffice to check severe inroads of the disease. Much of the benefit often accruing to patients with syphilis, and also with diseases of the skin, from a sojourn at one of the mineral springs in this country or in Europe, especially the latter, is from the rest and change of scene and climate, together with careful supervision of the general health, and strict rules in regard to diet, hygiene, exercise, sleeping, etc.

In regard, now, to the general treatment of such cutaneous affections as have been mentioned in previous lectures as having relation to disorders or disease of other organs we may consider it under the

three heads of Diet, Hygiene, and Internal medication.

DIET.

In the light of what has been said in the previous lectures, diet must be of importance in connection with many diseases of the skin, although experience has not yet been sufficiently accumulated to permit us to lay down absolute and fixed rules for special diseases. The subject is such a large one that I can give you only a few of the principal points.[1]

It must be remembered, first, that often what is one man's meat is another's poison, and some care should therefore be exercised in applying any rules or directions to individual cases.

It has often happened to me to find a patient who had been so hampered by the various directions given by physicians who had treated the case before, that the accumulation of them had resulted in an absolute or relative starvation, which greatly hindered the recovery. In these cases I have frequently swept all previous regulations aside, and directed the patient simply to eat rationally, whatever healthy persons in the family were eating; and the result has been most satisfactory. Later, of course, such di-

[1] Bulkley. Diet and Hygiene in Diseases of the Skin. Virginia Medical Monthly. October, 1878.

rections as to diet were given as seemed indicated by the disease or the patient's condition.

Dieting, to the popular mind, presents a starving process, which is to be continued a longer or shorter time, with the view, as it were, of starving out a disease, as one starves out a tapeworm before administering an anthelmintic. The value of total abstinence from food, for a short period, taking only water, cannot be denied in some early stages of febrile diseases, and in certain acute gastro-intestinal affections, and often in acute *eczema* it is desirable to limit the diet to rice for a while.

But diet in connection with many skin diseases has a different and much broader meaning, and signifies *such a regulation of the quantity and quality of the food taken, its mode of preparation, and the time and method of its consumption, as shall conduce to the restoration and maintainance of health.*

It will be noticed that there are several points mentioned in this definition, and I would like to notice them briefly, as it may help to a practical understanding of this problem of Diet in diseases of the skin, which sometimes seems difficult; I will take them up in order.

First, the *quantity* of food is mentioned. Among the well-to-do classes it is frequently recognized that they eat too much. Few people distinguish between

appetite and *taste;* they often gratify the taste long after the appetite is really satisfied. Everyone has heard the remark, when a tempting dessert is offered, "Well, really, I have had enough, but that looks very good, I will take a little," and so the digestive powers and metabolic processes are taxed, more or less, beyond the real needs of the individual, and the extra food has to be disposed of in some way; the result is often an imperfect assimilation, deranged metabolism, and unnecessary clogging of the system. From this may come intestinal fermentation of the imperfectly digested mass, and many toxic and reflex irritations in consequence.

It is in regard to the sweets that this error of eating very commonly occurs, which is one reason for the restriction of saccharine substances and rich desserts in many diseases of the skin. But all will recognize that long, course dinners will also result in an overloading of the digestive system, and consequently these should often be cautioned against in certain diseases of the skin.

But, on the other hand, the quantity of food may be too little, whether from loss of appetite, indigestion, erroneous directions of physicians and friends, or from other reasons, and it is often highly necessary to increase the quantity, within the bounds of good digestion and assimilation, in order to secure

proper nutrition to the skin; and to accomplish this is often no easy matter, all the details of which cannot here be entered into.

There is, however, one method of improving the nutrition, which I have found of such supreme value, in such a variety of cases, during the last twenty years and more, that I must beg your indulgence while I make the matter very plain; for upon the *exact* following out of the plan depends its success or failure. I have reference to the proper use of *milk,* and in endeavoring to make the matter clear, I shall draw freely on what I have already presented on the subject;[2] for to obtain satisfactory results the plan described must be adhered to *absolutely,* even to its *minutest* particular.

Neither words nor argument are necessary to show the advantage of milk as a nutriment. Millions of human beings, from the cradle to the grave, have proved its life-giving powers. Milk is food. Alone and unassisted it is capable, not only of sustaining life for an indefinite period, but it furnishes all the elements necessary for the complete construction of the human frame; on it alone the infant learns to walk and talk, and develops all the tissues of the system.

[2] Bulkley. Notes on the absorption of milk, etc. Journ. of Amer. Medical Assn. Dec. 17, 1898.

But many cannot take milk, or think that they cannot. and many others take it wrongly, and as commonly used in connection with food, it will constantly be found to be harmful, embarrassing the digestion, increasing the sluggish metabolism, and aggravating the eruption; of this I could cite very many instances; and again I could give hundreds of instances where, when used *exactly* on the plan proposed, it proved of inestimable value. I may say, however, that occasionally it may be necessary to suspend its use for a while, owing to a catarrhal condition of the stomach, which prevents the proper operation of the plan; yet, I have rarely found that it could not be resumed with advantage, after the trouble had been corrected. But I may add that it is not well to be too easily discouraged, and often, when the plan does not seem to work well at first, there will be found an error in some detail, and when this is corrected all will go well.

In order that the plan of giving milk, as recommended, may be perfectly understood and rightly carried out I must say a word as to the supposed physiology of the process.

Some years ago a number of persons reported the successful intravenous injection of milk, not once only but repeatedly, to the great benefit of depleted patients. In this process the milk enters the veins di-

rectly, mingles with the blood, and *goes first to the lungs,* without digestion such as takes place in the alimentary canal.

This intravenous injection and assimilation of milk, without previous aid of the digestive organs, led me to consider, many years ago, the possibility of introducing it otherwise, in such a manner that it could reach the lungs first, without passing through the portal vein to the liver, where, in adults, it is so likely to excite the condition which is popularly known as "biliousness."

Recognizing the similarity of milk to chyle (formerly called "milk juice") from which it is hardly distinguishable under the microscope, it was remembered that the latter is taken up by the lacteals and discharged into the venous blood in the sub-clavian vein and vena cava, going directly to the lungs. The question then arose if the milk, already in a state of perfect emulsion, could not pass through the same channels through which the elements of the chyle were absorbed, without the ordinary process of coagulation, caseation, and subsequent gastro-intestinal digestion.

The problem then was to present the milk in such a manner and at such a time that it would escape the acid and fermentative elements in the stomach, dur-

ing the process of digestion, and so avoid being curdled before it could be absorbed.

Physiologically it is well known that the stomach in health does not ordinarily secrete gastric juice except under the stimulus of food. At a varying period after the taking of food, the time being dependent upon the amount and quality of food taken and the activity of digestion, the stomach has finished its task; absorption of certain elements has already taken place, some portions have been passed on to the intestines for further action, and the organ is found empty, awaiting further cause for activity. At this period the stomach loses its turgid red color, becomes paler and quite flaccid, and its surface is bathed with more or less of an alkaline solution, this constituting the *"alkaline tide."* As stated, this alkaline tide occurs at varying periods of time after the ingestion of food; it may begin in an hour or so after a very small amount of very digestible food, or not for four, five, or even many more hours after a very heavy or unusually indigestible meal, or with very weak or sluggish digestion. This should constantly be borne in mind in connection with the plan of treatment recommended, otherwise failure is sure to result. It is only when this alkaline tide is perfectly secured and utilized that the real, beneficial results of this method of giving milk can be secured.

Remembering then that the blood was alkaline, the chyle alkaline, and normal milk also alkaline, it was believed that if the milk could be presented to the absorbents in an alkaline state, and at blood temperature, absorption would take place immediately, without the intermediate process of digestion. To accomplish this it must, of course, be introduced quite apart from all solid food, or any substance or condition which could excite gastric secretion. Even the least amount of acidity from a preceding meal would coagulate some of the milk, and so start on the whole process of caseation and digestion.

The idea, then, is to give the milk alone, pure or diluted with boiling water, at the body temperature, just after this alkaline tide has set in, or during its continuance, and to avoid food or any substance which could call forth gastric secretion until after its absorption has been fully accomplished. It is believed, then, that the warm alkaline milk is absorbed directly by the lacteals and carried at once by the thoracic duct into the sub-clavian vein, and so reaches the blood and is oxidyzed by the lungs, before it is submitted to liver action. It is manifest, therefore, that this plan is entirely opposed to the practice of eating a cracker with the milk, or even to the addition of egg, whiskey, etc.

As stated at the beginning of this description, it is necessary that there should be the strictest attention to all the details, in order to reap the benefits of this plan of improving the nutrition. But after an experience with it of over twenty years, and with a most varied and most difficult class of patients to handle, and with many temporary failures, I again assert that, when perfectly carried out, results can be obtained which are often marvellous; there is hardly a single fact in medicine or feature in therapeutics of which I am more confident.

A few words may be added in regard to some practical features of the subject. It has frequently happened that after full directions had been given, and it was supposed that the matter was fully understood, patients have returned with the statement that the plan was not successful, and that the milk disagreed with them, as it had always done. In such instances I have constantly found that in some way the proposed mode of absorption of the milk has been interfered with; and it will often be difficult to succeed, at first, in getting patients to carry out the plan exactly. For, it must be remembered, that the smallest amount of gastric juice or acidity will cause some portion of the milk to be coagulated; and when the digestive process is once begun, even in the slightest

degree, it must go on until all the milk has been attacked and digested.

In many instances I have found that the patient has taken with the milk a small amount of food, as a cracker, following the advice of a former physician or that of friends. Again, some will put an egg in the milk, or add whiskey, rum, or brandy, and in many ways I have had the correct operation of the plan interfered with. I have also known of harm done by cream which had risen, and had been stirred in the milk, causing flakes, or by the slightest scum, caused by boiling the milk, and even by some foreign substance, accidentally in the milk; these small solid particles, being incapable of immediate absorption, may cause the secretion of gastric juice, and so start the process of digestion.

The temperature of the milk is also an element of importance. When taken too cold or too hot, the effort of the stomach to bring it to the proper temperature for absorption will often seem to start gastric secretion, and a sensation of pressure and discomfort will follow, quite different from the agreeable feeling accompanying its proper use. The milk should be gently warmed to 100°, not boiled, and often it is desirable to effect this by the addition of about one-third its volume of boiling water; cream should never be added.

It repeatedly happens, that the milk is taken too soon after a meal, while the stomach is still acid, and so the desired end is defeated. Or, even when a long enough interval of time has elapsed, it has happened that, owing to a sluggish digestion or to some specially indigestible article, it has come upon the products of a former meal, and not during the alkaline tide. Thus, patients will often take milk at half-past ten or eleven in the morning, or at three or four in the afternoon, because at that time they had felt a faint and "gone feeling," and mistook the uncomfortable sensation of delayed digestion, for hunger. It will, therefore, often be very difficult to be quite sure that the stomach has reached the alkaline condition, at which time only the milk can be taken with advantage. My rule is not to have it taken longer than an hour before the coming meal, but occasionally it can be taken up to thirty minutes before.

Occasionally, if the digestion is sluggish, it will be necessary to administer pepsin or other digestives very freely and repeatedly, to ensure an empty stomach early enough. At times, when there is any doubt I give one or more doses of bicarbonate of soda, half an hour or so before taking the milk; also a little soda may be put in the milk if there is any question as to its alkalinity.

Many of these points—and more could be men-

tioned—may seem trivial and unnecessary, but long experience in following the plan recommended has convinced me that in this, as in so many other matters in dermatology, attention to minute details is of the utmost importance.

Milk when taken correctly on the plan recommended, increases the appetite for the coming meal, as I have observed in dozens of patients, and for reasons which can be readily understood. The process of secretion from the glands of the stomach and elsewhere, depends largely upon osmosis and blood pressure. By the quick absorption of the milk, the pressure of the blood in the capillaries is increased, and a richer blood is offered for the production of gastric juice.

In closing the consideration of this subject I may add, that it has been repeatedly brought to the attention of medical men privately and in Societies, as also in print, and large numbers have personally and in public attested to the great value of the plan recommended, although some have questioned the exact physiology of the processes concerned.

The next item in our definition of Diet refers to the *quality* of food taken, and this is certainly often of the greatest importance in connection with many diseases of the skin; the subject is so great that I must necessarily be rather brief and dogmatic in my

statements of the results of experience. Civilization has introduced such a variety of food and drinks, and has produced so many combinations, various ones of which are harmful, that it is evidently impossible to cover the whole ground, and only general matters and some few items can be considered.

While man is omnivorous, and a mixed diet is undoubtedly proper to most persons in health, in disease it is often desirable to limit or increase one class or another of nutrient elements, or single articles of food and drink; and this often found to be true in regard to certain diseases of the skin.

Meat. Although not subscribing wholly to the claims which have been made in regard to uric acid itself as a cause of disease, we have seen in the preceding lectures that imperfect nitrogenous metabolism is certainly a factor in many cutaneous affections, and it has been pretty conclusively shown that excessive *meat-eating* produces this condition. It is, therefore, always desirable to look into this matter, both in acute and chronic cases, for in this country meat is often eaten far in excess of the proper proportion; this error is generally in the direction of beef and mutton, in cities at least. In some acute eruptions it is well to abstain entirely from the two latter for a while, and in *psoriasis* this total abstinence for months or even years is often attended with a prac-

tical freedom from the eruption, as I have repeatedly observed.[3]

But abundance of eggs are often wrongly substituted for meat, and as they are strongly nitrogenous they only maintain or increase the faulty metabolism, their clogging effect on the liver being long recognized.

Fish is commonly supposed to be injurious in diseases of the skin, because on certain occasions an acute eruption of *urticaria* has followed its use; but this can almost always be traced to some idiosyncrasy or other cause, or to a stale or bad article. The heavier varieties, salmon and blue fish, may sometimes disagree, but fish in general is serviceable in diseases of the skin, and can often take the place of meat, especially in neurotic subjects. Much the same is also true in regard to shell fish, although, as will be seen shortly, the manner of preparing them often renders them unsuitable for this class of diseases.

Fats and *oils* are often wrongly avoided in many cutaneous diseases, especially in *acne,* but even in the latter eruption I believe this to be an error; when given under proper conditions and well assimilated they are most valuable and may often be largely in-

[3] Bulkley. Clinical Notes on Psoriasis. Trans. N. Y. State Med. Soc., 1895.

creased with advantage, to take the place of the carbo-hydrates, furnishing material for combustion with less fermentation and acidity than the sugars and starches. But, as will be seen presently, they can prove harmful, from faulty modes of preparation, as in fried articles, etc. Butter, freshly applied, fat of meats, oils, and especially bone marrow, often serve a valuable end; cream, used alone, is often beneficial, but it also can be harmful in certain combinations.

Sugars and *starches* must necessarily form a certain portion of the diet, but in excess, and as often combined with other substances, they prove harmful in many cutaneous affections, leading to gastro-intestinal fermentation and perverted metabolism; it is well, therefore, to limit them in a measure and substitute fresh vegetables and the coarse cereals.

Most of the *vegetables* are suitable in diseases of the skin, though some may be harmful because of their usual mode of preparation, as will be noticed later. Excess of white and sweet potatoes will sometimes cause acidity, and I think, as a rule, tomatoes had better be largely avoided. The heavier root vegetables, turnips, parsnips, and old beets are not very desirable in this class of cases.

It is difficult to give succinctly any rules or directions in regard to *fruits,* so great is their variety and

so varied their effects on different individuals. They are often avoided because of the supposed ill effect of their acidity on what is often called the acid state of the system. But it is to be remembered that animal acidity is quite different from mineral and vegetable acidity; for we know that nitric acid acts as a very efficient oxidyzer in many acid states of the system, and a vegetable acid, as in lemons, is often a most valuable addition to certain treatments of acute or sub-acute gout, and acetic acid, in the acetates, acts only beneficially in counteracting some forms of acidity; so that vinegar is not as a rule to be avoided.

I have had reason to believe, however, that grape fruit, now so freely indulged in, is not desirable in many cases of *eczema,* and I have known of bananas affecting *acne* unfavorably. As these and many other fruits brought to New York are ripened artificially, and without the effect of sunlight, I have considered that in the process there are developed elements which interfere with normal metabolism. In Europe it is very common to advise only cooked fruits and these are often more desirable, as used there in compots which have practically no sugar; when richly preserved, fruits are all harmful in most eruptions.

Cereals form undoubtedly the food best fitted for nutrition, and that on which the greater portion of

mankind thrives, and should be more largely encouraged in this country, especially among those inclined to diseases of the skin; when properly prepared and rightly eaten they are most serviceable.

The best cereal preparations are those composed of the whole wheat, of which there are a large number on the market. But in using them, and all cereals, it is better to avoid taking them with sugar and milk, and to eat them as a vegetable, with butter and salt. Whole-wheat or graham bread should also be largely eaten by skin patients.

There is one special method of using wheat in connection with the treatment of infants,[4] which I feel that I must dwell on, as a favorable experience of twenty years with it has naturally convinced me of its value. A cup full of ordinary, coarse wheaten-grits or crushed wheat is put in a pint of cold water, in a double rice or milk boiler, and cooked slowly for two hours. It is then set aside, covered, and left until morning, when it is found to be more or less jellified. More water is then added, with stirring until quite thin, and it is cooked again quite slowly for two hours more. It is then turned out on a fine sieve, and rubbed with a spoon, more water being added if neceessary, until the soft portion is

[4] Bulkley. Infant feeding, etc. Journ. of the Amer. Med. Assn. Oct. 15, 1887.

made to pass through, and forms what I have called "wheat jelly"; it should be prepared fresh every day. This separates all the nutritive properties, including the phosphates, from the wheat kernel, and may be given alone, with a little salt, in any reasonable quantity; it may also be added to milk, and passes readily through the feeding bottle.

Rice comes next to wheat in practical value in connection with diseases of the skin; in some patients with acute *eczema* it is often desirable to give absolutely nothing but rice, at all meals, for several days, and in many chronic diseases of the skin it is very valuable as a substitute for much other food; it should always be cooked well, with water and not milk, and eaten with butter and salt.

Oatmeal rightly has a questionable value, as "heating" in diseases of the skin, but possibly this is in part owing to the quantities of milk, and often sugar with which it is eaten; it may generally be taken as an occasional substitute for other cereals. The same is somewhat true of corn products, especially "yellow meal," but white hominy and samp may be occasionally taken to give variety.

There are, of course, multitudes of articles of food which cannot be mentioned here, and judgment must be passed upon them in accordance with the principles involved in this and preceding lectures. I have

repeatedly seen fresh outbreaks of *acne* directly traceable to indulgence in *nuts; cheese* should not be harmful, if properly used, and writers upon the uric acid diathesis advise its employment in place of meat; but as commonly taken at the end of a hearty meal, it often acts unfavorably in many cutaneous affections.

In our definition of diet *drink* was mentioned with food, as requiring attention, and this should always be considered in connection with many diseases of the skin.

Tea and *coffee* are not necessarily harmful in this class of patients, and may generally be allowed in moderation, at proper times; but some of the worst cases of *eczema* which I have been called on to treat were in those who consumed inordinate amounts of tea, taking it many times daily. In some cases coffee acts badly on the nervous system and must be interdicted, and its free use seems to make *pruritus* about the anal and genital region much more rebellious. Unless there are special counterindications, I generally allow skin patients some coffee and tea, each only once daily—but with very little sugar and milk.

Chocolate is often taken in place of the former, but as a rule is not desirable, as it often seems to interfere with proper metabolism: in many cases of

acne and other eruptions I have seen chocolate, either eaten or taken as a beverage, greatly aggravate the disease. *Cocoa* is less objectionable, but some of the harm from both chocolate and cocoa comes also from the amount of sugar and milk taken with them.

Milk has already been fully considered in a previous section: as a beverage, it is constantly seen to be harmful in many diseases of the skin; except when taken exactly as already described.

Fermented and *distilled drinks* are certainly harmful in the majority—yes, in nine-tenths—of the cases of general skin diseases, and in many instances, as in *acne rosacea,* the condition is practically incurable if they are persisted in. Renault[5] has shown that the physiological action of alcohol is such as to predispose, more or less, to cutaneous diseases: 1. Because it is eliminated by the skin: 2. Because a small dose produces general nervous excitation, and a large dose depression: 3. Because of its diminishing the amount of carbonic acid exhaled and lowering the temperature: and 4. Because of its tendency to produce fatty changes in the tissues.

Tobacco is so frequently mentioned in connection with liquors, that it may be briefly considered here. The cold, clammy skin generally following its first em-

[5] Renault, A. Sur l'influence de l'alcoolisme dans la developpement de pleusiers groupes d'affections cutanées. Thèse de Paris, 1874.

ployment shows that it is not without effects on the nerves of the vaso-motor system in the skin; the same condition has been repeatedly observed later in life from its excessive use. Its ill effects are constantly observed in many cutaneous affections, and *pruritus* and *eczema* of the anal and genital region will often persist until its use is abandoned, and will return when it is resumed. Also in *acne* and *eczema* of the face it is often evidently harmful.

Water in good quantity is called for in many diseases of the skin, as may be judged from preceding lectures relating to metabolism and derangements of the liver and kidneys: in some patients, for one cause or another, far too little liquid enters the system, and the scanty and thick urine but reflects the deranged condition of the blood. Time and again the free use of water internally will be found of inestimable service in many diseases of the skin. The beneficial effects often attending visits to various mineral springs is now believed by many to be largely due simply to the water passing through the system, and not to the special medicinal ingredients, as I tried to show some years ago.[6]

But even water may prove harmful, if wrongly taken, and special directions must be given or the pa-

[6]Bulkley. What real value have natural mineral waters, etc.? Medical Record, Jan. 4, 1890.

tient will err. *Iced water* certainly provokes gastric catarrh, and its attendant evils, and the immediate flushing of the face from its use aggravates *acne* and *erythematous eczema,* and other conditions. While some water, not too cold, may be taken during the meals, it is, of course, better at other times, and in skin patients with deficient urinary secretion I constantly order it hot, a tumbler-full one hour before each meal, and often at bedtime.

Mineral waters are, in the main, a delusion and a snare, although patients may be more faithful in following directions if some special water is prescribed: often a tablet, as of lithia, put in each tumbler of plain hot water, will secure more regularity in its consumption. I have my patients avoid carbonated waters.

A word may be said in regard to *soups*. Many patients with eruptions about the head and face will say that they are always much flushed after taking soup, and have themselves learned to avoid it. The richer, cream, bisque, and gravy soups are certainly to be avoided by patients with cutaneous diseases: a little clear bouillon may or may not be harmful.

A few words must be given to the next point in our definition of diet, namely, the *mode of preparation* of food, for gross errors are constantly arising, which I constantly see affecting various diseases of the

skin. The subject is too large a one to more than touch on here, and relates mainly to the digestive disturbances and consequent metabolic errors which may be thereby caused. A few illustrations of the manner in which the preparation of food may do harm, will best serve the purpose.

Thus, while raw oysters, crackers, and butter would not be harmful, the same ingredients in the form of fried oysters are often most injurious. Flour when baked into good bread, and eaten not too fresh, with plenty of butter, serves well, but when the same ingredients are commingled in pie-crust, the result is often disastrous. Oil, vinegar, etc., on lettuce, and even lobster, may agree perfectly, but when made into mayonnaise dressing may prove harmful. The separate ingredients of wedding-cake, mince pie, etc., may be harmless taken alone, but in combination are injurious. The same is true of the very many combinations which have been introduced, as in the higher grades of candy. Fresh fruit and sugar may agree perfectly with a patient, while made up into rich preserves, or fruit jellies, they work harm. And so on, of many items in this connection; in obstinate cases, at least, the physician should pay great attention to minutiæ to get the best success.

One more point in our definition of diet remains to be briefly mentioned; namely, the *time and method of*

taking food and drink, which often play an important part in connection with many diseases of the skin. Irregular, delayed, and hasty meals I find to be a constant source of nervous exhaustion and gastro-intestinal disturbances, and I could relate many cases where their influence on cutaneous affections was very marked: allusion has already been made to the evil results of hurried eating, imperfect mastication, and faulty insalivation.

Few realize the effect of the mental and nervous state at or near the time of eating, yet there is abundant evidence to show that these often have the greatest bearing on the process of digestion. Nervous shock or excitement, or great mental occupation can certainly delay digestion for a long period, and lead to fermentation and the formation of toxins, resulting in auto-intoxication, and consequent eruptions on the skin. Also great fatigue before meals or heavy exercise thereafter, can produce the same result.

All these points, and many, many more could be presented, may seem to be very homely and commonplace, and, of course, most of them are known to you already. But they have been dwelt upon because my experience with multitudes of chronic and rebellious cases of various diseases of the skin has fully satisfied me that they are of vital importance in many

instances; and it has been just because such matters as these have been overlooked, and the patcient treated in a routine and empirical manner, by one physician after another, that many an eruption has persisted. In many an instance a chronic and stubborn case has yielded, with relatively simply local treatment, when all the elements of ill health were looked into and corrected. This last remark must also be my excuse for troubling you with some details which are liable to be overlooked, in regard to

HYGIENE.

Hygiene relates really to so many elements which may and often do contribute to the good or bad health of the patient, and may and do influence various diseases, both of the skin and of other organs, that it is difficult even to touch upon many matters which are of importance in certain cases. It is understood, of course, that, as in some matters pertaining to diet, those belonging to hygiene may not relate to every case of skin disease. But the careful physician should know, grasp, understand, and, if necessary, direct the various details of his patient's life which may have any bearing on a case; and from long experience I unhesitatingly state that all the matters which I have mentioned, or shall mention, in these lectures, have, each and every one of them, at some time or another,

had an important bearing on many patients afflicted with cutaneous affections. We will take up some of the elements referred to.

1. *Occupation.* It is well recognized that many cutaneous lesions are the direct result of various occupations, through irritating agencies, as in the case of *eczema* in washerwomen, masons, plasterers, and others, also when irritating dyes, minerals, or acids, etc., inflame the skin; these do not particularly concern us now.

But occupation may also incidentally be an element of very great importance in connection with many cutaneous affections, by virtue of its general effects upon the system or upon the circulation.

It constantly happens that an over-strained business or professional person will have a rebellious eruption while the conditions last, as mentioned under nervous disorders, in the previous chapter: or an exhausted mother or over-taxed school teacher or scholar will not recover from a cutaneous disorder while the depressing circumstances exist. In some instances a radical change is necessary, but commonly a little thought and planning will overcome many of the injurious elements.

In reference to the harmful effects of occupation, I may mention a most rebellious case of *acne rosacea* and *indurata* in a young women engaged in a shoe

store: however well she did under treatment when away from her occupation, the trouble returned with severity when she resumed her work of fitting on shoes, requiring the head to be bowed over. In another instance, in a blacksmith, the hanging posture of the head, and the heat, rendered the same trouble practically incurable.

All are familiar with the effects of long standing, as in washerwomen, car drivers, and others, in producing *eczema* and *ulceration* of the lower extremities, the weakened and varicose veins preventing proper absorption of effused products. Happily in the solid rubber bandage,[1] properly applied and worn rightly, we can now control this hitherto rebellious condition.

2. *Rest.* While all recognize the necessity of proper rest, in life, practically this is too often wrongly understood or badly carried out, and one frequently sees cases of various cutaneous affections where the nervous or physical exhaustion, from want of proper rest, aggravates the disease or renders it rebellious: often activities are undertaken, for so-called pleasure, which are wrongly regarded as recreation, when real *rest* would have been more proper *re-creation.*

[1] Bulkley. On the use of the solid rubber bandage in the treatment of eczema and ulcers of the leg. Archives of Dermatology. New York, July, 1878.

Rest before the meals is most valuable, and is worth much more than rest or lying down after meals, which often induces a very sluggish state of the system. In nervous and exhausted subjects a most valuable method is to combine rest for exactly half an hour, beginning an hour before meals, with the milk treatment already described; and I could give many, many instances where the transformation of the patient by this simple procedure has been simply marvellous. I am very particular to direct the patient to lie down, in a darkened room, and to be called in exactly half an hour; in this way a short nap is often secured, and the patient is then up for half an hour, refreshed and ready for the meal.

3. *Time and hours of sleep.* Attention has already been called to the matter of sleep, in Chapter 3, and this is a subject which should always be considered by the physician, in many cases of diseases of the skin. While certain persons will be found who are regular and systematic in their bed hours, others are most irregular and careless; and I am confident, from habitually questioning patients for years, that this is a matter of prime importance in very many obstinate cases. Unless this matter is carefully inquired into and sternly corrected by the physician, even at frequent intervals, there will errors creep in which greatly complicate some cases.

4. *Atmospheric conditions.* Many patients, with various eruptions, are very sensitive to barometric changes in the atmosphere, and will predict storms long before they occur: many feel chilly without great cause, and many suffer greatly from the heat, and from either too moist or too dry an atmosphere, as from dry furnace heat, and the skin is proportionately irritated thereby. It is often well, with furnace heat to modify the air by pans of water in the apartment.

5. *Clothing.* As many eruptions are modified greatly by heat and cold, and moisture or dryness, and as the skin is often irritated by harsh or improper underclothing, it is frequently necessary for the physician to take cognizance of all these matters, and often to give very specific directions. For in these, as in so many matters relating to diet and hygiene, patients, as a rule, have had no instruction, and their instinct and common sense do not always prove a correct guide amid the temptations and entanglements of modern life.

6. *Exercise.* The question of exercise in connection with many cases of diseases of the skin is sometimes a difficult one to determine, and harm is often seen both from excessive and deficient exercise. The aim, of course, is to have sufficient physical exertion to ensure adequate and proper muscular movement,

in order to effect the proper interchange of nutritive substances and waste products.

But this depends very largely upon the quantity and quality of food taken and oxygen inspired: it is quite possible, however, to have such an equilibrium established that relatively little active exercise is required; and long observation and experience have led me to believe that the matter of exercise is often overdone, and that many skin diseases are harmed instead of benefitted by too violent or prolonged exertion. On the other hand, too sedentary a life, with overeating can and often does lead to a stagnation of the vital processes which contributes largely to the generation or continuance of certain cutaneous affections. This is a matter which must be regulated intelligently by the physician for each case, on its own merits.

7. *Massage.* When exercise cannot be taken, massage may be employed, but this must be done with great caution, for I have repeatedly seen the skin greatly irritated by the process, and fresh eruption thereby developed. At the best it is but a poor substitute for voluntary muscular effort, and I confess that I very rarely order it; though I have had patients with various skin affections who think that they have received great benefit therefrom.

8. *Bathing.*. The tendency of modern times is to the free use of water externally, and in many in-

stances this will be carried to an injurious extent by patients with various affections of the skin. Not to speak of the harm which sometimes comes in the way of disordered circulation and internal congestions, and their subsequent effect upon the skin, from injudicious bathing, we frequently find the skin greatly irritated directly by the excessive use of water. From long observation[8] I have been led to share the view of Hebra, who toward the close of his life wrote very strongly to the effect that the matter of bathing was constantly overdone; he stated that he saw more eruptions in those who were active bathers than in those who neglected the skin in this respect.

But, on the other hand, it is well to remember that the skin is an important excretory organ, giving off at times more liquid than the kidneys or lungs, though the amount of solid excretory matter is relatively small. It is important, therefore, that the surface be kept in a proper condition; although I think that a great deal that is said about "keeping the pores open" is unnecessary and irrational: animals do not bathe, and yet the skin performs its functions satisfactorily. A certain amount of bathing for cleanliness is rational, but as sometimes practiced it is unnecessary and oftimes harmful.

[8] Bulkley. On the use of water in the treatment of diseases of the skin. Chicago Medical Journal and Examiner. Jan., 1880.

Turkish and Russian baths have often been taken with a view to "purifying the blood," and eliminating some *materies morbi* through the skin: the fallacy of this need not be dwelt on. As a means of promoting the activity of the skin they are occasionally of service, but it is questionable if the powerful stimulation of its glands to action is not often followed by a corresponding reaction which is harmful. Turkish and Russian baths may be likened to the action of purgatives to the bowels, which while occasionally valuable, are prejudicial if abused, and are constantly seen to aggravate eruptions.

Sulphur and mercurial baths have their unquestioned value as special therapeutic agents in certain affections of the skin, but as indiscriminately given, or rather more often, as taken by patients themselves, they commonly do more harm than good.

Sea bathing is often resorted to by patients with diseases of the skin, and will sometimes prove of value, especially in *psoriasis:* it is, however, certainly injurious to many cases of *eczema,* certainly to those at all acutely inflamed. In more chronic cases or in those of eczematous habit, sea air and sea bathing are often beneficial, especially to those who have lived at some distance from the sea. As a rule, those dwelling on the sea-board receive most gain from an entire change to a mountain region.

9. *Mineral Springs.* The last remark made in regard to the indiscriminate use of the sulphur and mercurial baths applies equally well to the matter of the use and abuse of mineral springs, both as to bathing in the waters and drinking them. To advise or permit a patient with a cutaneous affection to visit and make use of them indiscriminately, is likely to be as useless, if not harmful, as to send one to a drug store without a prescription: and not one in a hundred of the multitudes who wander among these resorts, receive the benefit hoped for, or expected from the printed statements, which are too often colored by personal bias or commercial interest.

This is a large subject, and one which cannot be adequately treated at the present time. My observations have been largely of an adverse or negative character; for it has fallen to my lot to see hundreds of patients with various cutaneous affections who have visited mineral springs either with no benefit, or with but temporary gain, or who were even made worse thereby: while I have known of really very few who have been greatly benefitted or apparently cured by this means. But much of the value which sometimes comes from visits to those abroad, or even in this country must be put down to the salutary effects of the change of air and scene, diet, rest from care, and expectation of benefit.

To be of real service a mineral water should be prescribed as intelligently as any other remedy: certain springs are undoubtedly of value in certain forms of disease or conditions of the system, while with others quite a different mineral water is required. Failure to discriminate in this respect has led to innumerable disappointments and fruitless journeys at vast trouble and expense. As a result of personal visits and sojourn at several dozen of the most noted watering places in this country and Europe, I am convinced, that by far the larger share of the patients with skin affections at them would do infinitely better under proper medical care at home, employing an equal quantity of ordinary water in the same way as at the springs. When studying this subject some time ago I came to the conclusion that it was the water itself, rather than the mineral ingredients it contained, which was of benefit.

There is a distinct disadvantage to the patient that one often sees in connection with the supposed value of mineral springs, which it is often difficult to overcome. The expression is often used of a "cure" at such places, and patients will often go to them for a while, and perhaps be benefitted, and then, neglecting all proper treatment will relapse into their former condition. This is peculiarly true in regard to

syphilis, and for this additional reason it is questionable if more ultimate harm than good has not been done through the existence of certain springs which have a reputation for the cure of this disease. It is now pretty well granted by all that it is really the energetic medicinal treatment given at these places which is responsible for any benefits observed, and it is equally well known that it is only by prolonged proper treatment that final good results can be obtained; and this is often neglected after so-called "cures" at those places.

Another disadvantage is that having tried one or more mineral springs without satisfactory results, patients frequently become hopeless in regard to their condition, and too often fail to secure and persist in the proper course of other treatment. It would take far too much time to attempt to give you, even briefly, the indications for the use of the various mineral waters more or less used and recommended for different diseases of the skin, and I must refer you to works on the subject, with the cautions I have already given.

We see, thus, that there may be many items under hygiene which can be of the greatest importance in relation to various cutaneous affections, and which should always be considered and directed by the physician who seeks the best interests of patients thus af-

fected: in many instances errors in regard to them may quite prevent recovery.

GENERAL THERAPEUTICS.

You will readily understand, from the many relations to internal disorders which have been alluded to, more or less fully, that the subject of general therapeutics in relation to certain diseases of the skin may cover a very wide field, which it would be quite impossible to embrace in the time which remains. And yet there are certain features which I think should be presented, in order that you may obtain the greatest benefit from this course of lectures.

From what has preceded, you will realize first, that there can be no general or special internal therapeutics applicable to every case, even with the same diagnosis as to the affection of the skin. It will constantly happen, therefore, that practically the same internal measures may be given to a number of patients who have quite different eruptions on the skin, because at that time they all present internal conditions, which, if unchecked, would tend to produce or aggravate the cutaneous malady.

As a corollary to this we recognize that the patient with any one, correctly diagnosed eruption, is

not necessarily to be treated in the same manner for a length of time; for internal conditions may so change that quite other remedies are required to effect the desired end, or in order that a previous medicine may produce the expected result. Many a patient cannot take iron, arsenic, quinine, cod liver oil, or other remedy advantageously, under certain conditions of the system, when, with proper care and with an adjuvant or alternate treatment, the desired remedy is borne well and proves of great service. This is, of course, well recognized in general medicine, but somehow, as far as my observation goes, is apt to be overlooked in connection with skin cases, which are too often treated in a routine manner, without due regard to common sense. And I am confident, from experience, that much of the obstinacy of many cases is due to the neglect of the two cardinal principles I have just stated.

In the second lecture I gave considerable time to the relations of digestive and excretory disorders to many affections of the skin, and tried to show the important part which functional derangements of the liver continually played in this connection. A few years ago this was regarded as an old-fashioned idea, but, with the swing of the pendulum of medical thought, it is again being more and more recognized in literature, and I am sure that you will do well to

give these relations constant and serious attention, as I have always done.

It is impossible now to give you the special remedies required to meet all the possible conditions in connection with all the subjects under immediate consideration, but I may remind you of some of the remedies which you have often seen me prescribe for patients in the clinics. The blue mass and colocynth pill (℞ Mass. Hydrag. Extr. Colocynth Co. aa. gr. x, Pulv. Ipec. gr. ii. M. Div. in pil. no. iv. Take two at night and two on the second night after) is a most happy combination, and seldom disappoints, as I can testify after having prescribed it almost daily for thirty and more years. At the beginning of treatment, or later, as needed to clear out the *primæ viæ,* it is most valuable, and, when patients are taking strong iron or other tonics, I often have them taken each week, on the same days: let me emphasize the fact that it is very desirable to give the two doses, omitting one night between. As a remedy for habitual constipation you will get very good results from the compound cascarin tablet (℞ Cascarin, podophyllyn, aloin, aa. gr. 1/4. One or more every night as required.) In some cases, where a more tonic effect is desired, it will be better to give, before or after eating, an aloes and iron pill (℞ Ferri Sulph. exsic., ʒss. Pulv. Aloes purif. ℈i, Pulv. aromat. ʒi,

Confect. rosæ ℈i. M. Div. in pil. no. XL); one or more may be given three times daily, after or before meals, and the number gradually reduced as the bowels regain a normal tone.

In many cases of congestive *acne rosacea* and *indurata,* where there is more or less constipation and renal insufficiency, you have seen the excellent results following the use of a compound rumex mixture (℞ Potass. Acetatis. ʒi, Tinct. Nuc. Vom. ♏ii, Ext. Cascar. fl. ♏i—♏iv, Ext. Rumic. rad. fl. ad. ʒiv. M. Teaspoonful in water half an hour before meals): This acts much more efficiently when taken well diluted, half an hour to an hour before meals, than otherwise. In many instances of different eruptions, when there is atonic dyspepsia, with acidity of the urine, great benefit is obtained from an alkali with a simple bitter tonic (℞ Potass. Acetatis. ʒi, Tinct. Nuc. Vom. ♏ii, Infus. Quassiæ ad. ʒiv. M. Teaspoonful in water after eating). Do not forget the value, in many eruptions, with digestive disturbances, of the well-known rhubarb and soda mixture (℞ Pulv. Rhei. ℈i—ʒi, Pulv. Ipecac. gr. x, Sodae bicarb. ʒii, Aquæ Menth. pip. ʒiv. M. Teaspoonful in water after eating). This is much more satisfactory than in tablets.

Considerable attention was paid in the second lecture to the part which gastric and intestinal indiges-

tion, with fermentation, played in exciting some cutaneous affections, and this should always receive careful attention, and be rectified if possible, by diet and suitable remedies, which cannot be fully detailed here. Many of the digestive tablets and other preparations on the market often serve an invaluable purpose in removing the general disturbance which often lies at the bottom of some intractable skin lesions: intestinal fermentation and auto-intoxication should never be forgotten, and resorcin, beta-naphthol, bichloride of mercury, etc., may prove efficient aids in the treatment of certain cutaneous disorders, as also calomel.

Neurotic disturbance was shown to have a very powerful influence in connection with many lesions of the skin, and this is an element which must be continually considered and properly attended to in dermatological practice. Here again it is impossible within our limits to give more than a few hints, so wide is the subject.

Almost all of the remedial measures known to the neurologist may at some time be required in caring for one or another disease of the skin. Arsenic, which has long been too highly regarded as "good for diseases of the skin," finds its value largely through its action on the nervous system, as is shown in its control of many cases of *pemphigus,* although it un-

doubtedly influences more or less directly the epithelial elements of the skin: this latter is sometimes shown remarkably in the disappearance of *warts* under full doses of arsenic, as also in the improvement in the coats of animals, to whom it is often given for this purpose. But many other so-called neurotic remedies, strychnia, caffein, preparations of phosphorus, quinine, and even belladonna or atrophia, may at times play an important part in cutaneuous therapeusis, while cannabis indica, gelsemium, and some of the analgesic coal-tar products are of constant service in securing relief from itching, and sleep, in skin cases: opium and its salts are unsatisfactory for this purpose.

Finally, *electricity* has again come into prominence in connection with the treatment of many diseases of the skin exhibiting neurotic elements, and not only static and hyperstatic electricity, but the galvanic current and X-rays are invaluable aids in treating many cases.

Mention was made of circulatory derangements in their relation to certain cutaneous affections, and these will often require very particular attention in order to secure the best results. Digitalis, strophanthus, and nitroglycerine, as also aconite, and occasionally antimony, may all any time be required in connection with skin cases, and ergot in full doses is often most

serviceable, especially in *purpura,* and occasionally in *acne rosacea* and *eczema.*

Time fails to present the many practical thoughts which suggest themselves in connection with the internal and general therapeutic management of many diseases of the skin, but I must add a few words which may seem common and out of place to some of the older practitioners present, but which I am sure, from long experience, will be of value to some who have not hitherto taken the broad view of dermatology which I have endeavored to present.

Remember, always, that disease, whether of the skin or other organ, represents a lowered vitality, either of the part affected, or, more commonly, of the whole organism, which the affected organ has shared. We have seen, in an earlier lecture, that even in those diseases in which micro-organisms are present, and are commonly accredited as the cause, there is a necessity that the soil or tissue in which they flourish shall be in a receptive condition, and this is one of lowered vitality: for the larger share of micro-organisms in general are saprophytic, feeding naturally on dead matter. It is essential, therefore, to realize that a greater or less spanæmia, a diminished vigor of the white blood corpuscles, or a depressed nervous tone, and a lessened power of resistance of the tissues is present, and the aim of treatment should

be to restore tone and vigor everywhere, in order that part particularly affected may be restored to health.

But error is often made in attempting to force a tonic treatment when the various organs of the body are not performing their work satisfactorily: Hence particular attention has first been directed to the action of the bowels, liver, and kidneys, which must continually be kept in view.

It is again quite impossible to indicate even in a slight degree the tonic remedies and measures which may, at one time or another, be required in connection with the treatment of many diseases of the skin, as they must necessarily vary with each patient. Routine prescribing has long been the bane of Dermatology, as of other branches of medicine, and accounts largely for the want of success often attending the treatment of skin cases.

The tonic remedies and measures which may at one time or another be of value and required in different cutaneous affections are as numerous and varied as are those in the Phamacopœia; and the latter, with properly regulated diet and hygiene suffice to meet every requirement, without recourse to the many quack or semi-quack remedies so blatantly advertised or thrust upon the medical profession for commercial

purposes; against all these let me most earnestly warn you.

Before closing this course of lectures there is one point not generally thought of to which I would like to direct your attention. It is to the not infrequent relation of a cutaneous affection to other conditions of the system in a manner which may have more or less significance in regard to the general health.

As in the *exanthemata, syphilis,* and *leprosy,* we recognize that the skin lesions are only one of the expressions of the action of the virus, and as the bronzing of the skin in *Addison's disease,* the skin lesions in *Raynaud's disease,* and the *xanthelasma* of diabetics are only external manifestations of more serious internal disorder, so in many more instances an eruption of the skin is only a sign of some other internal disturbance, as an *urticaria* of intestinal fermentation, a *zoster* of an ascending neuritis, and an *acne rosacea,* of an intestinal, uterine, or ovarian disorder.

If viewed in the broad light which I have endeavored to develop in these lectures, the occurrence of a cutaneous disorder may often be of the greatest service to a patient as a warning, a red signal flag of danger thrown out, which, if properly heeded and rightly cared for may save more serious consequences. Not that the external eruption necessarily saves one from

other trouble, or can in any way be considered as the outlet to the system, getting rid of "peccant humors," as formerly believed; this I utterly deny. But if it will direct the physician and patient to a serious consideration of the general system and mode of life, and to the correcting of errors of various kinds, very much can be gained in the way of increased vitality and ability to resist disease of other kinds.

Thus, *eczema,* especially if it be at all general, or located on many parts of the body, indicates a lowered general vitality, which if not corrected exposes the patient to other maladies. Often in a gouty subject an *eczema,* or perhaps a *bullous eruption,* will be found with a hard bounding pulse, and is a loud cry for proper corrective treatment, dietetic and medicinal, which will prove of the utmost value, and may save serious brain or other trouble. Recently a long standing *psoriasis* led me to discover very great urinary insufficiency, in a lady who sometimes passed only from seven to eleven ounces of urine, by measure, in twenty-four hours; this would surely have resulted in damaged kidneys, or possibly stone, if not corrected. In many an instance an obstinate or severe *acne* will be the final inducement to a patient to seek medical advice, when there will be found a deplorable state of general health, with derangement of many organs, as shown in the letter from a pa-

tient, which was presented in the second lecture, and of which I could quote innumerable illustrations. I have now under treatment a school teacher, who consulted me only for excessive *falling of the hair,* in whom a most distressing state of nervous and physical exhaustion existed, and who is now literally a changed person, having gained many pounds in a relatively short time, while continuing her work. We all know that a skin manifestation in late syphilis has often been the means of securing rightly directed treatment, which has saved the eyesight in progressive syphilitic choroiditis, or even saved life in cases of arterial changes or tumor in the brain; of both of these I have had many instances.

Such illustrations could be multiplied indefinitely, but I think enough has been said in all these lectures to convince you that troubles on the skin may often be indications of more serious disorder elsewhere, which should never be slighted: and he may incur a heavy responsibility who regards a cutaneous disease too slightly, neglecting to study the patient and resorting to local treatment alone.

It is understood, of course, that I by no means understimate the importance of exactly correct local measures, of which you have often seen the good results in the preceding clinics. Perhaps next year I may be able to give a similar course of special lec-

tures, devoted to examining the rationale of local treatment, and detailing methods and measures likely to be of the most benefit in different diseases of the skin.

In conclusion, gentlemen, I wish to thank you for your close attention and evident appreciation of this attempt to present, in very brief form, some of the principles underlying the correct practice of Dermatology. The task of compressing much in the small space of four lectures has been considerable, and I recognize well how imperfectly it has been done. But if I shall have succeeded in interesting you more seriously and deeply in this most attractive branch of medicine, and if I shall have aided any of you in the intelligent and practical management of any of your cases, I shall be fully satisfied.

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